Offshore Wind Negative – Table of Contents

Case Debate

Answers to: Climate Change Advantage

Climate change is a natural cycle

Climate change isn't caused by CO2 or human activity – it's a natural occurrence and we are on track to see temperature declines soon.

Bell, Professor of Space Architecture at the University of Houston, 2012
(Larry, "Global Warming? No, Natural, Predictable Climate Change," *Forbes*, January 10, Online: http://www.forbes.com/sites/larrybell/2012/01/10/global-warming-no-natural-predictable-climate-change/)

Finally, **three major available global surface temperature record sources report a steady-to-cooling trend since 2001. These measurements contradict the strong warming predicted by all IPCC models during the same period that are attributed primarily to a continuing increase in CO2 emissions.** Indeed, **only one global surface record source shows a slight increase in the temperature since 2001. This occurred because missing temperature data needed to be adjusted or filled in to complete the records**…which appears to be the case with NASA Goddard Institute for Space Studies model data resulting from poor sampling during the last decade for Antarctic and Arctic regions and the use of a 1200 km smoothing methodology.¶ The Duke University/NASA JPL study estimates that **as much as 0.3 degrees of warming from 1970 to 2000 may have been naturally induced by the 60-year modulation during the warming phase, amounting to at least 43-60% of the 0.5-0.7 degrees allegedly caused by human greenhouse emissions.** Additional **natural warming can be explained by increased solar activity during the last four centuries, as well as simply being part of a natural and persistent warming recovery since the end of the Little Ice Age of AD 1300-1900**.¶ Nicola Scaletta concludes that **the scientific method requires that a physical model fulfill two conditions…it must be able to reconstruct as well as predict (or forecast) direct physical observations.** Here, he argues that **all climate models** used by the IPCC **can do neither. "They seriously fail to properly reconstruct even the large multi-decadal oscillations found in the global surface temperature which have climatic meaning. Consequently, the IPCC projections for the 21st century cannot be trusted." In fact**, he argues that **"By not properly reconstructing the 20-year and 60-year natural cycles we found that the IPCC GCMs have seriously overestimated also the magnitude of the anthropogenic contribution to recent warming**."¶ Unlike the current IPCC models, the astronomical harmonics model can have real climate forecasting value. By combining current trend information with natural cycle patterns Scafetta believes that the **global temperature "may not significantly increase during the next 30 years mostly because of the negative phase of the 60-year cycle."** He goes on to say: "If multi-secular natural cycles (which according to some authors have significantly contributed to the observed 1700-2010 warming and may contribute to an additional natural cooling by 2100) are ignored, the same **projected anthropogenic emissions would imply a global warming by about 0.3-1.2 degrees C by 2100, contrary to the IPCC 1.0-3.6 degree C projected warming."**

Other countries produce CO2 emissions

Countries like China produce tons of CO2 – this makes climate change inevitable regardless of US reductions.

Atkin, staff writer for Think Progress, 2014
(Emily, "Stoping Climate Change 'Almost Impossible' if China Can't Quit Coal, Report Says," *Think Progress,* May 12, Online: http://thinkprogress.org/climate/2014/05/12/3436673/coal-dependent-china/)

If China doesn't begin to limit its coal consumption by 2030, it will be "almost impossible" for the world avoid a situation where **global warming** stays below 2°C, a new study released Monday found.¶ The study, led by the U.K.'s Center for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment, recommends China put a cap on greenhouse gas emissions from coal by 2020, and then swiftly reduce its dependency on the fossil fuel. The reductions would not only increase public health and wellness and decrease climate change, but could also "have a major positive effect on the global dynamics of climate cooperation," the report said.¶ **"The actions China takes in the next decade will be critical for the future of China and the world,"** the study said. "**Whether China moves onto an innovative, sustainable and low-carbon growth path this decade will more or less determine** both China's longer-term economic prospects in a natural resource-constrained world, … and **the world's prospects of cutting greenhouse gas emissions sufficiently to manage the grave risks of climate change**."¶ **The general question surrounding the prevention of climate change is whether the earth can avoid a 2°C situation** — that is, **whether we can reduce greenhouse gas emissions swiftly enough to keep global average surface temperatures from rising to 2°C** (3.6°F) **above pre-industrial levels**. World leaders, including China, agreed to avoid that 2°C situation in 2009 by signing the Copenhagen Accord in 2009, a three-page nonbinding pledge to fight climate change.¶ **In 2011, one-fifth of the world's total fossil fuel carbon dioxide emissions came solely from China's coal, and coal was responsible for more than 80 percent of the country's 8 gigatons of fossil fuel emissions that year**.¶ But **despite increasing calls for China to reduce its coal-burning** — not only because of climate impacts but because of infamous, choking air pollution — **it has been unclear whether the country has made enough effort to actually make a dent in its consumption. The country has taken steps to replace** thousands of small-scale **coal mines** with large ones, and its largest cities have pledged to make drastic reductions in emissions.¶ **However,** a Chinese government report recently found that **only a tiny fraction of Chinese cities fully complied with pollution standards in 2013**, while **approving the construction of more than 100 million tonnes of new coal production capacity in 2013**, according to a Reuters report.

Other countries produce CO2 emissions

Chinese coal use accounts for nearly 20% of global greenhouse gas emissions – and shows no signs of declining.

Stern, Professor and Chair of Research on Climate Change at the London School of Economics, 2014
(Nicholas, "An innovative and sustainable growth path for China: a critical decade," *Center for Climate Change Economics and Policy*, Online: http://thinkprogress.org/wp-content/uploads/2014/05/Green-and-Stern-policy-paper-May-2014.pdf)

Fourth, **China's coal use is a major source of global GHG emissions and therefore increases the risks associated with climate change** — risks to which China will be increasingly exposed. **In 2011, coal was responsible for more than 80% of China's** 8Gt of **CO2 emissions from fossil fuel combustion** (Figure 5),38 **which were in turn around a quarter of the world's fossil fuel combustion CO2 emissions** (IEA 2013a). **In other words, around one fifth of the world's CO2 emissions from fossil fuel combustion came from Chinese coal.¶If Chinese coal consumption continues to grow, as most experts project**, until sometime between 2025 and 2035, and declines only slowly thereafter (Figure 6), total **Chinese emissions would** seem likely to exceed 15GtCO2e by 2030, **mak**ing **it almost impossible for the world to move onto an emissions reduction pathway that gives even a 50-50 probability** of staying below 2°C.39 Of course, developed countries are disproportionately responsible for the historical concentrations of emissions in the atmosphere, but **the reality is that crossing this threshold would dramatically increase the risks of climate impacts** to which China would be exposed — impacts that could reverse much of the growth and development that China has achieved over the preceding decades (IPCC 2014; WB/PIK/CA 2012; Stern 2012).

People will still use fossil fuels for energy

Wind energy can't get rid of fossil fuel consumption – things like transportations and heating depend on fuel that produces emissions.

Rosenbloom, President of National Wind Watch, 2006
(Eric, "A Problem with Wind Power," September, Online: http://www.aweo.org/problemwithwind.html)

Electricity represents only 39% of energy use in the U.S. (in Vermont, 20%; and only 1% of Vermont's greenhouse gas emissions is from electricity generation**). Pollution from fossil fuels also comes from transportation (cars, trucks, aircraft, and ships) and heating. Despite the** manic **installation of wind facilities in the U.K., their CO2 emissions rose in 2002 and 2003. At a** May 27, 2004, **conference in Copenhagen, the head of development from the Danish energy company Elsam stated, "Increased development of wind turbines does not reduce Danish CO2 emissions." Demanding better gas mileage** in cars, including pickup trucks and SUVs, promoting rail for both freight and travel, and supporting the use of biodiesel (for example, from hemp) **would make a huge impact on pollution and dependence on foreign oil, whereas wind power makes none**. New-generation diesel-powered cars common in Europe use less than half the fuel as their gasoline counterparts in the U.S. ¶**Wind-power advocates often propose that wind turbines can be used to manufacture** hydrogen for **fuel cells. This** may be an admirable plan (although Windpower Monthly dismisses it for several reasons in a May 2003 article) but **is so far in the future that it only serves to underscore the fact that there is no good reason for current construction**. And it must be remembered that as wind turbines are unable to produce significant amounts of electricity they would likewise be unable to produce significant amounts of hydrogen. On top of that, a 2004 study by the Institute for Lifecycle Environmental Assessment determined that hydrogen returns only 47% of the energy put into it, compared with pumped hydro returning 75% and lithium ion batteries up to 85%.

Wind can't supply enough energy to reduce emissions

The affirmative's authors assume wind farms' potential output under ideal circumstances – but a variety of issues like weather make substantial electrical output nearly impossible.

Bell, Professor of Space Architecture at the University of Houston, 2011
(Larry, "Wind Energy's Overblown Prospects," *Forbes*, March 8, Online: http://www.forbes.com/sites/larrybell/2011/03/08/wind-energys-overblown-prospects/)

Many green energy **advocates have exaggerated the capacity of wind power to make a significant impact on U.S. electrical needs**. Any euphoric fantasy that an unlimited, free and clean alternative to carbon-cursed fossil-fuel sources is blowing by with scant notice is exceedingly naïve and misguided.¶ **A major point of public confusion in this regard lies in a failure to differentiate maximum total capacities**, typically presented in megawatts (MW), **with actual predicted kilowatt hours** (kWh), **which are determined by annual average wind conditions at a particular site. Wind is intermittent, and velocities constantly change. It often isn't available when needed most** — such as during hot summer days when demands for air-conditioning are highest.¶ **According to a 2009** Energy Information Agency **Report** on Electricity Generation, **wind power provided only 70 billion** kWh **of the total U.S. 3,953 kWh supply (1.79% of generated power). Yet in May 2008, the U.S. Department of Energy estimated that it is feasible to increase wind capacity to supply 20% of this nation's electricity and enough to displace 50 % of natural gas consumption and 18% of coal use by 2030.¶ The report**, drawn up by its national laboratories said that meeting this target **presumed some important assumptions. It would require improvements in turbine technology, cost reductions, new transmission lines and a five-fold increase in the pace of wind turbine installations. What exactly does that mean in terms of real, available kWh generating output?** Actually, **it means very little if merely a minor percentage of that technical feasibility provides electricity when needed. To be extremely optimistic, let's assume that actual average output would be 25% of that projected installed capacity. In that case, the real output would be less than 5% of the country's electricity, and more realistically, about half of even that amount under optimistic circumstances**.

Warming irreversible

We're past the point of no return – it's too late to reverse warming. Solomon et al '10

(Susan, Ph.D. in Climatology University of California, Berkeley, Nobel Peace Prize Winner, Chairman of the IPCC, Gian-Kasper Plattner, Deputy Head, Director of Science, Technical Support Unit Working Group I, Intergovernmental Panel on Climate Change Affiliated Scientist, Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland, John S. Daniel, research scientist at the National Oceanic and Atmospheric Administration (NOAA), Ph.D. in physics from the University of Michigan, Ann Arbor, Todd J. Sanford, Cooperative Institute for Research in Environmental Science, University of Colorado Daniel M. Murphy, Chemical Sciences Division, Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder Gian-Kasper Plattner, Deputy Head, Director of Science, Technical Support Unit Working Group I, Intergovernmental Panel on Climate Change, Affiliated Scientist, Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland Reto Knutti, Institute for Atmospheric and Climate Science, Eidgenössiche Technische Hochschule Zurich and Pierre Friedlingstein, Chair, Mathematical Modelling of Climate Systems, member of the Science Steering Committee of the Analysis Integration and Modeling of the Earth System (AIMES) programme of IGBP and of the Global Carbon Project (GCP) of the Earth System Science Partnership (ESSP), "Persistence of climate changes due to a range of greenhouse gases," *Proceedings of the National Academy of the Sciences of the United States of America,* October 26, Vol 107.43)

Carbon dioxide, methane, nitrous oxide, and other greenhouse gases increased over the course of the 20th century due to human activities. The human-caused increases in these gases are the primary forcing that accounts for much of the global warming of the past fifty years, with carbon dioxide being the most important single radiative forcing agent (1). Recent **studies** have **show**n that the **human-caused warming linked to carbon dioxide is** nearly **irreversible for more than 1,000 y, even if emissions** of the gas **were to cease entirely** (2–5). The importance of the ocean in taking up heat and slowing the response of the climate system to radiative forcing changes has been noted in many studies (e.g., refs. 6 and 7). The key role of the ocean's thermal lag has also been highlighted by recent approaches to proposed metrics for comparing the warming of different greenhouse gases (8, 9). Among the observations attesting to the importance of these effects are those showing that climate changes caused by transient volcanic aerosol loading persist for more than 5 y (7, 10), and a portion can be expected to last more than a century in the ocean (11–13); clearly these signals persist far longer than the radiative forcing decay timescale of about 12–18 mo for the volcanic aerosol (14, 15). Thus the observed climate response to volcanic events suggests that some persistence of climate change should be expected even for quite short-lived radiative forcing perturbations. It follows that the **climate changes induced by short-lived** anthropogenic **greenhouse gases such as methane or** hydrofluorocarbons **(HFCs) may not decrease** in concert **with decreases in concentration i**f the anthropogenic **emissions** of those gases **were to be eliminated**. In this paper, our primary goal is to show how different processes and timescales contribute to determining how long the climate changes due to various greenhouse gases could be expected to remain if anthropogenic emissions were to cease. Advances in modeling have led to improved AtmosphereOcean General Circulation Models (AOGCMs) as well as to Earth Models of Intermediate Complexity (EMICs). Although a detailed representation of the climate system changes on regional scales can only be provided by AOGCMs, the simpler EMICs have been shown to be useful, particularly to examine phenomena on a global average basis. In this work, we use the Bern 2.5CC EMIC (see Materials and Methods and SI Text), which has been extensively intercompared to other EMICs and to complex AOGCMs (3, 4). It should be noted that, although the Bern 2.5CC EMIC includes a representation of the surface and deep ocean, it does not include processes such as ice sheet losses or changes in the Earth's albedo linked to evolution of vegetation. However, it is noteworthy that this EMIC, although parameterized and simplified, includes 14 levels in the ocean; further, its global ocean heat uptake and climate sensitivity are near the mean of available complex models, and its computed timescales for uptake of tracers into the ocean have been shown to compare well to observations (16). A recent study (17) explored the response of one AOGCM to a sudden stop of all forcing, and the Bern 2.5CC EMIC shows broad similarities in computed warming to that study (see Fig. S1), although there are also differences in detail. The climate sensitivity (which characterizes the long-term absolute warming response to a doubling of atmospheric carbon dioxide concentrations) is 3 °C for the model used here. Our results should be considered illustrative and exploratory rather than fully quantitative given the limitations of the EMIC and the uncertainties in climate sensitivity. Results One Illustrative Scenario to 2050. In the absence of mitigation policy, concentrations of the three major greenhouse gases, carbon dioxide, methane, and nitrous oxide can be expected to increase in this century. If emissions were to cease, anthropogenic CO2 would be removed from the atmosphere by a series of processes operating at different timescales (18). Over timescales of decades, both the land and upper ocean are important sinks. Over centuries to millennia, deep oceanic processes become dominant and are controlled by relatively well-understood physics and chemistry that provide broad consistency across models (see, for example, Fig. S2 showing how the removal of a pulse of carbon compares across a range of models). About **20% of the emitted** anthropogenic **carbon remains in the atmosphere for** many **thousands of years** (with a range across models including the Bern 2.5CC model being about 19 4% at year 1000 after a pulse emission; see ref. 19), **until** much **slow**er **weathering processes affect** the carbonate **balance** in the ocean (e.g., ref. 18). Models with stronger carbon/climate feedbacks than the one considered here could display larger and more persistent warmings due to both CO2 and non-CO2 greenhouse gases, through reduced land and ocean uptake of carbon in a warmer world. Here our focus is not on the strength of carbon/climate feedbacks that can lead to differences in the carbon concentration decay, but rather on the factors that control the climate response to a given decay. The removal processes of other anthropogenic gases including methane and nitrous oxide are much more simply described by exponential decay constants of about 10 and 114 y, respectively (1), due mainly to known chemical reactions in the atmosphere. In this illustrative study, we do not include the feedback of changes in methane upon its own lifetime (20). We also do not account for potential interactions between CO2 and other gases, such as the production of carbon dioxide from methane oxidation (21), or changes to the carbon cycle through, e.g., methane/ozone chemistry (22). Fig. 1 shows the computed future global warming contributions for carbon dioxide, methane, and nitrous oxide for a midrange scenario (23) of projected future anthropogenic emissions of these gases to 2050. Radiative forcings for all three of these gases, and their spectral overlaps, are represented in this work using the expressions assessed in ref. 24. In 2050, the anthropogenic emissions are stopped entirely for illustration purposes. The figure shows nearly irreversible warming for at least 1,000 y due to the imposed carbon dioxide increases, as in previous work. **All published studies to date**, which use multiple EMICs and one AOGCM, **show largely irreversible warming due to future carbon dioxide increases** (to within about 0.5 °C) on a timescale of at least 1,000 y (3–5, 25, 26). Fig. 1 shows that the calculated future warmings due to anthropogenic CH4 and N2O also persist notably longer than the lifetimes of these gases. The figure illustrates that emissions of key non-CO2

greenhouse gases such as CH4 or N2O could lead to warming that both temporarily exceeds a given stabilization target (e.g., 2 °C as proposed by the G8 group of nations and in the Copenhagen goals) and remains present longer than the gas lifetimes even if emissions were to cease. A number of recent studies have underscored the important point that reductions of non-CO2 greenhouse gas emissions are an approach that can indeed reverse some past climate changes (e.g., ref. 27). Understanding how quickly such reversal could happen and why is an important policy and science question.

Fig. 1 implies that the use of **policy measures to reduce emissions** of short-lived gases **will be less effective** as a rapid climate mitigation strategy than would be thought if based only upon the gas lifetime. Fig. 2 illustrates the factors influencing the warming contributions of each gas for the test case in Fig. 1 in more detail, by showing normalized values (relative to one at their peaks) of the warming along with the radiative forcings and concentrations of CO2 , N2O, and CH4 . For example, about two-thirds of the calculated warming due to N2O is still present 114 y (one atmospheric lifetime) after emissions are halted, despite the fact that its excess concentration and associated radiative forcing at that time has dropped to about one-third of the peak value.

Answers to: Peak Oil

Oil dependence inevitable

Oil dependence is inevitable – we have become too reliant

New York Times, 2008
("Gusher of Lies", *New York Times,* 3-7-08, Online:
http://www.nytimes.com/2008/03/07/books/chapters/first-chapter-gusher-of-lies.html?pagewanted=all)

This book focuses on the need to acknowledge, and deal with, the difference between rhetoric and reality. The reality is that **the world** — and the energy business in particular — **is becoming** ever more **interdependent**. And **this interdependence will** likely **only accelerate in the years to come as new supplies of fossil fuel become more difficult to find and more expensive to produce**. While **alternative and renewable forms of energy will make minor contributions to America's overall energy mix**, they cannot provide enough new supplies to supplant the new global energy paradigm, **one in which every type of fossil fuel** — **crude oil, natural gas, diesel fuel, gasoline, coal, and uranium — gets traded and shipped in an ever more sophisticated global market. Regardless of the ongoing fears about oil shortages**, global warming, conflict in the Persian Gulf, and terrorism, the plain, unavoidable truth is that the U.S., along with nearly every other country on the planet is married to fossil fuels. And **that fact will not change in the foreseeable future**, meaning the next 30 to 50 years. **That means that the U.S.** and the other countries of the world **will continue to need oil** and gas **from the Persian Gulf and other region**s. Given those facts, **the U.S. needs to accept the reality of energy interdependence. The integration and interdependence of the global energy market can be seen by looking at Saudi Arabia,** the biggest oil producer on the planet. In 2005, **the Saudis imported 83,000 barrels of gasoline and other refined oil products per day**. It can also be seen by looking at Iran, which imports 40 percent of its gasoline needs. Iran also imports large quantities of natural gas from Turkmenistan. If the Saudis, with their 260 billion barrels of oil reserves, and the Iranians, with their 132 billion barrels of oil and 970 trillion cubic feet of natural gas reserves, can't be energy-independent, why should the U.S. even try? An October 2006 report by the Council on Foreign Relations put it succinctly: "The voices that espouse 'energy independence' are doing the nation a disservice by focusing on a goal that is unachievable over the foreseeable future and that encourages the adoption of inefficient and counterproductive policies." **America's future when it comes to energy** — as well its future in politics, trade, and the environment — **lies in accepting the reality of an increasingly interdependent world. Obtaining the energy that the U.S. will need in future decades requires American politicians, diplomats, and businesspeople to be actively engaged with the energy-producing countries of the world, particularly the Arab and Islamic producers**. Obtaining the country's future energy supplies means that **the U.S. must embrace the global market while also acknowledging the practical limits on the ability of wind power and solar power to displace large amounts of the electricity that's now generated by fossil fuels** and nuclear reactors. The rhetoric about **the need for energy independence continues largely because the American public is woefully ignorant about the fundamentals of energy and the energy business**. It appears that voters respond to the phrase, in part, because it has become a type of code that stands for foreign policy isolationism — **the idea being that if only the U.S. didn't buy oil from the Arab and Islamic countries, then all would be better. The rhetoric of energy independence provides political cover for protectionist trade policies, which have inevitably led to ever larger subsidies for politically connected domestic energy producers, the corn ethanol industry being the most obvious example.**

Reserves prevent crisis

No conflict from peak oil – reserves will last

Kaminsky, senior fellow at the Heartland Institute, 2011
(Ross, Energy Myths of the Left, *The American Spectator*, Online: http://spectator.org/archives/2011/05/27/energy-myths-of-the-left)

¶ **From confused "peak oil" theorists to confused Congressmen, it's all but impossible to hear a discussion of US energy policy without hearing the left's tired refrain: "The United States currently uses 25% of the world oil production but has only 2% of world reserves." The left uses this misinformation to argue against** domestic oil **drilling**, claiming that with only two percent of the world's reserves, we can't possibly have enough oil in the ground to matter.¶ ¶ It's a line which reminds me of Mark Twain's wisdom (which he attributed to Benjamin Disraeli) that "There are three kinds of lies: lies, damned lies and statistics." Twain would be proud of these haters of fossil fuels whose "statistics" fall apart upon examination of a couple of definitions and a few pieces of data.¶ ¶ First, the word "reserves." As the Congressional Research Service notes, **there are several different types of reserves,** classified based on their official discovery, as well as "concentration, quality, and accessibility." **The top of the "resource pyramid" is made of "proved" reserves, namely reserves of oil, natural gas, coal, or other fuel "which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions."¶¶ This is the most limiting definition of reserves, and of course it is the one which the left relies on when saying that we have "only two percent of the world's oil reserves." Specifically, the U.S. has 20.7 billion barrels of proved crude oil reserves as of the end 2009.** (That's actually up from 2008 numbers which by itself should be a clue how meaningless the left's two-percent argument is.)¶¶ **The problem with the use of the "proved reserves" statistic is that it ignores the many more billions of barrels of oil which we know exist and are likely to be recoverable on American land and just off our coasts.** Since our government prevents exploration, there are massive deposits of oil (and other fuels) which are prevented from being measured adequately to be defined as "proved." But that doesn't make them less real.¶¶ **A broader measure of fossil fuel deposits** is UTRR, undiscovered technically recoverable resources. Marcus Koblitz, energy analyst at the American Petroleum Institute, sent me this "short" definition of the term: "UTRR are estimated by USGS and/or BOEMRE using advanced modeling techniques that apply knowledge of geologic formations and technical access capabilities to currently unexplored formations that are similar to producing formations in order to determine the amount of oil and natural gas in a specific area or basin."¶ ¶ The UTRR numbers are remarkably high for the United States; indeed they demolish the left's anti-drilling pseudo-logic. Or they would if the media's talking heads would stop just accepting the 2% lie-statistic.¶ ¶ In particular, the United States' UTRR for onshore oil **is currently about 38 billion barrels, with the offshore technically recoverable resources coming in at a stunning 86 billion barrels.** (Of this, just over half is in the Gulf of Mexico, a third in Alaska, and the rest off our Pacific and Atlantic coasts.) **Our real but not "proved" resource of oil is thus about 125 billion barrels. Furthermore, the offshore numbers are based on a report that used data from 2003, at which time oil discovery and drilling technology were far behind what they are today,** the BP disaster notwithstanding. It is likely that a new survey would conclude with a substantially higher UTRR number.¶ ¶ Even with the outdated offshore figures, **the U.S.'s total technically recoverable oil, including current proved reserves and 10 billion barrels of natural gas liquids, is estimated by our government at 163 billion barrels, eight times the number thrown around by the left.¶¶ Yes, our total recoverable oil reserves (including proved) are at least eight times our proved reserves alone.** It's just that government keeps us from proving them. And if that's not enough, our UTRR for natural gas is five times our proven reserves of that resource.

No Resource Wars

Resource wars don't happen – other variables at play

Victor, professor of law at Stanford Law School and the director of the Program on Energy and Sustainable Development, 2007
(David, "What Resource Wars?," November 12, Online: http://www.nationalinterest.org/Article.aspx?id=16020)

RISING ENERGY prices and mounting concerns about environmental depletion have animated fears that the world may be headed for a spate of "resource wars"-hot conflicts triggered by a struggle to grab valuable resources. Such fears come in many stripes, but the threat industry has sounded the alarm bells especially loudly in three areas. First is the rise of China, which is poorly endowed with many of the resources it needs-such as oil, gas, timber and most minerals-and has already "gone out" to the world with the goal of securing what it wants. Violent conflicts may follow as the country shunts others aside. A second potential path down the road to resource wars starts with all the money now flowing into poorly governed but resource-rich countries. Money can fund civil wars and other hostilities, even leaking into the hands of terrorists. And third is global climate change, which could multiply stresses on natural resources and trigger water wars, catalyze the spread of disease or bring about mass migrations.¶ Most of this is bunk, and **nearly all of it has focused on the wrong lessons for policy. Classic resource wars are good material for Hollywood screenwriters. They rarely occur in the real world. To be sure, resource money can magnify and prolong some conflicts, but the root causes of those hostilities usually lie elsewhere. Fixing them requires focusing on the underlying institutions that govern how resources are used and largely determine whether stress explodes into violence.** When conflicts do arise, the weak link isn't a dearth in resources but a dearth in governance.

Environmental resource conflicts settled by negotiation and compromise, not war

Goldstone, professor of public policy at George Mason, 2002
(Jack, "Population and Security: How Demographic Change Can Lead to Violent Conflict," *JOURNAL OF INTERNATIONAL AFFAIRS,* Fall, Vol. 56, p. 123)

Should we therefore dismiss the environment as a cause of conflict? No, although I believe we can be free of the fear that environmental decay will unleash wars and revolutions across the globe. Rather, what **research has shown is that although environmental issues do cause international and domestic conflicts, they are of the kind that are generally settled by negotiation and compromise and do not lead to taking up arms. The reason for that is straightforward. Where the problem faced by two groups, or two nations, is over the degradation or depletion of an environmental resource, war neither solves the problem (it cannot make more of the resource) nor is it an economically efficient way to redistribute the resource (the costs of war almost invariably far outweigh the cost of gaining alternative resources or paying more for a share of the resource).** For example, if two nations have a conflict over sharing river water—such as India and Bangladesh over the Ganges, Israel and Jordan over the river Jordan or Hungary and Slovakia over the Danube they may threaten violence but in fact are most likely to produce non-violent resolution through negotiation or arbitration rather than war (and indeed all of these conflicts led to treaties or international arbitration. The reason is that for one party to insist on all the water would in fact be a casus belli; and to risk a war to simply increase one's access to water is economically foolhardy. Throughout the world, the main use of freshwater (over three-quarters) is for irrigation to produce food. A reduction in water can be compensated either by adopting more efficient means of irrigation (drip rather than ditch); by switching to less water-intensive crops (dry grains rather than rice; tree crops rather than grains); or by importing food rather than producing it. All of these steps, though costly, are far, far, less costly than armed conflict. Thus **for both the country with the ability to take more water and the country dependent on downstream flows, the issue will be how to use and negotiate use of the resource most efficiently; resort to war would inevitably be more costly than any gains that could be made from increased access to the resource. No nations have ever gone to war strictly over access to water; nor are any likely to do so in the future.**

Answers to: Energy Poverty Advantage

Renewable energy advances energy poverty

Low cost fuel sources are solving energy inequality now – subsidized renewable energy is costly and advances fuel poverty.

Sutton, Vice President of Global Communications at Peabody Energy, 2014
(Beth, "Peabody Energy Chairman & CEO Greg Boyce Calls On Leaders To Solve Energy Inequality During Wall Street Journal ECO:nomics Interview," April 3, Online: http://www.peabodyenergy.com/Investor-News-Release-Details.aspx?nr=818)

"Energy inequality is the blight of energy poverty, limiting access to basic needs like food, water and medicine; stunting education and cutting lives short," said Boyce. "Every one of the U.N. Millennium Development goals depends on adequate energy, yet today one out of every two citizens lacks adequate energy and over 4 million lives are lost yearly due to the impacts of this scourge." ¶Boyce commented on what he calls the world's number one human and environmental crisis during a wide-ranging interview with Wall Street Journal Assistant Managing Editor and Executive Business Editor John Bussey. Top CEOs, policymakers and global leaders were part of the audience at the 2014 ECO:nomics conference in Santa Barbara, Calif. ¶Consider these statistics: ¶ Globally 3.5 billion people lack proper energy access, and 1.2 billion are children.¶About half the children in the developing world attend schools without electricity.¶Some 1 billion people receive substandard healthcare because of a lack of electricity.¶The global population is expanding by more than 200,000 people each day, and by 2050, the world's population is forecast to exceed 9.6 billion, with over two-thirds living in cities.¶Boyce said energy inequality is an issue for both developing and developed nations. "More energy is needed to create energy access for billions, to sustain growth for a new global middle class and improve access to low-cost electricity. Too many families in developed nations face the tough choice of paying for food or energy," he said. ¶"The greatest environmental crisis we confront today is not a crisis predicted by computer models but a human crisis fully within our power to solve," Boyce said. ¶Boyce called for driving policies and actions that increase access to reliable, **low-cost power using today's advanced coal technologies** that **extends lives, builds economies and improves natural and indoor environments. ¶Coal has the scale to meet these needs, and today's high-efficiency supercritical coal plants have state-of-the-art controls and ultra-low emission rates. Every large, advanced coal plant brings the equivalent carbon benefit of removing 1 million cars from the road**.¶**"Policies that force use of more expensive, less reliable energy push costs throughout the economy and place the heaviest burden on the world's poor and low-income citizens. We need all forms of energy to address global needs, and we must recognize the strengths and limitations of each choice. Advanced coal is the sustainable fuel at scale that can meet these needs**," Boyce said.¶**Coal has been the fastest-growing major fuel the past decade** and is set to surpass oil as the world's largest fuel in coming years. **Coal's market share for U.S. electricity generation has increased by one-third in the past two years, and now has twice the market share of natural gas.**

Wind energy is more expensive than alternatives

Wind energy is expensive – it's only affordable because of government subsidies, which put more costs on the poor.

Goreham, policy advisor to the Heartland Institute, 2013
(Steve, "Offshore Wind: The Enormously Expensive Energy Alternative," *Washington Times*, June 7, Online: http://communities.washingtontimes.com/neighborhood/climatism-watching-climate-science/2013/jun/7/offshore-wind-enormously-expensive-energy-alternat/)

Unfortunately, **offshore wind is enormously expensive. The US Department of Energy (DOE) estimates the levelized cost of wind-generated electricity at more than double the cost of coal-fired electricity and more than three times the cost of power from natural gas**. For example, **the proposed Cape Wind project off the coast of southeast Massachusetts will initially deliver electricity at 18.7 cents per kilowatt-hour with a built-in increase of 3.5 percent per year over a fifteen-year contract. This is more than triple the wholesale cost of electricity in New England.**¶ **Offshore wind is only possible because of generous subsidies, tax breaks, and mandates from government**. Today, 38 states offer property tax incentives, 28 states offer sales tax incentives, and 24 states offer tax credits for renewable energy sources. Twenty-nine states have Renewable Portfolio Standards laws requiring utilities to buy an increasing share of electricity from renewable sources, including all ten states in the Offshore Wind Energy Consortium.¶ **At the start of the year, the US government extended the Wind Energy** Production **Tax Credit** (PTC), providing 2.2 cents per kilowatt-hour for electricity generated from wind. **The PTC will cost taxpayers $12 billion this year.** Look for the DOE to offer loan guarantees to offshore wind developers. Altogether, **government incentives pay 30 to 50 percent of the cost of a wind installation.¶ The consumer pays twice for offshore wind. First, consumer taxes fund wind energy subsidies and tax breaks. Second, states like Massachusetts force utilities to buy high-cost offshore wind electricity, which then increase electricity rates so the consumer pays again.**

Energy efficient housing is the only way to solve

Fuel prices are subject to change – only measures to create energy efficient housing will protect the poor.

Sir Marmot, Director of the International Institute for Society & Health, 2011
(Michael, "The Health Impacts of Cold Homes and Fuel Poverty," *Friends of the Earth Report*, Online: http://www.foe.co.uk/sites/default/files/downloads/cold_homes_health.pdf)

Cold housing and fuel poverty not only have direct and immediate impacts on health, but also indirect impacts and a wider effect on well-being and life opportunities, as well as on climate change. The evidence reviewed in this paper shows the dramatic impact that cold housing has on the population in terms of cardio-vascular and respiratory morbidity and on the elderly in terms of winter mortality. It also highlights the stark effect that fuel poverty has on mental health across many different groups, while also having an impact on children and young people's well-being and opportunities.¶
Addressing energy inefficient housing and bringing all homes up to a minimum standard of thermal efficiency would have the strongest positive impact on the poorest households, even though households from a variety of socio-economic backgrounds are likely to be residents of such properties.¶ **A** medium **scenario** model **for fuel price increases developed in 2008 predicted fuel poverty in England to jump to four million by 2016 if improvements to the energy performance of the housing stock, and growth in the incomes of low-income households, were maintained at only current rates** (69). Fuel poverty has now already risen to this level because the fuel price increase was much higher than the model predicted: **the current energy efficiency of the existing housing stock is unable to mitigate such high increases. However, it is unlikely that anyone living in a dwelling built to current and near-future standards will be at any risk of being in fuel poverty** (70). **The Government should aim to make improving energy efficiency standards a priority: any step forward in achieving certain minimum standards in the existing housing stock will reduce the risk of fuel poverty for current and future households and bring associated health benefits.**

Answers to: Solvency

Offering subsidies won't solve – Delays (Technology)

Even if investor confidence is there, it will take years to develop a substantial offshore wind presence – multiple technological barriers to implementation that can supply US

Giordano, JD from University of Richmond School of Law, 2010
(Michael, "Offshore Windfall: What Approval of the United States' First Offshore Wind Project Means for the Offshore Wind Energy Industry," *University of Richmond Law Review*, 44:3, March, Online: http://lawreview.richmond.edu/offshore-windfall/)

One of the things keeping the offshore wind energy industry from growing is a lack of sufficient technology. Expanded growth of the offshore wind industry will depend on research, development, and innovation.[46] **Areas of technological need include improved reliability, greater environmental compatibility, and cost reduction**.[47] Technological **advances must address** these areas of need with regard not just to **the design of turbines but also** to **the installation process and maintenance.**¶At present, offshore wind turbines are basically larger versions of onshore wind turbines that have been adapted to the marine environment.[48] The current foundation system for offshore wind turbines consists of large steel tubes called monopiles, which are typically embedded twenty-five to thirty meters below the mud line.[49] Monopile designs are considered appropriate for waters up to thirty meters deep.[50] Offshore wind farms use large turbines "ranging from the Vestas V-80 2 MW turbine to GE Wind's 3.6 MW turbine to Repower's 126 m diameter, 5 MW turbine."[51]¶**Present foundation technology limits the offshore wind energy industry's ability to harness the full potential of offshore wind energy. The strongest and most consistent winds blow above waters deeper than thirty meters**.[52] A marginal "10% increase in wind speed creates a 33% increase in available energy."[53] Thus, **meaningful growth of offshore wind energy is dependent upon the research and development of new technologies that enable developers to place turbines in deep water.** Some anticipate the creation of "[s]tiffer, multi-pile configurations with broader bases suitable . . . for water depths up to 60 m or greater."[54] From there, many expect that foundations will transition even further, toward floating turbine structures that would be fastened and secured to the ocean floor by wires.[55] Such a transition would have to make use of existing technologies from the oil and natural gas industries, which already use floating platforms.[56] **Unlike oil and gas projects on the OCS, wind projects require fast, modular installations that can be replicated easily due to the anticipated frequency of maintenance.**[57] Researchers believe that "**[t]he biggest challenge for deepwater wind turbines will be to merge the mature but expensive technologies borne of the oil and gas industry with the experience of low-cost economic drivers fueling the shallow water offshore wind energy industry."**

Offering subsidies won't solve – Delays (Infrastructure)

Existing technologies from on-shore wind farms don't translate to offshore facilities – AND the US needs a whole new fleet of ships to install and maintain OSW.

Giordano, JD from University of Richmond School of Law, 2010
(Michael, "Offshore Windfall: What Approval of the United States' First Offshore Wind Project Means for the Offshore Wind Energy Industry," *University of Richmond Law Review*, 44:3, March, Online: http://lawreview.richmond.edu/offshore-windfall/)

The installation process also brings technological challenges to the offshore wind energy industry. In order to install offshore wind turbines, developers will need to hire a fleet of vessels including "barges with compensated cranes, leg stabilized feeder fleets, oil and gas dynamic positioning vessels, and floating heavy lift cranes."[62] "**This imposes a limitation on American offshore wind development, since all vessels used for construction and operations and maintenance** (O&M) . . . **have been European,"**[63] **and United States law mandates that only United States-based vessels may work in United States waters**, with little exception.[64] Thus, **growth of domestic offshore wind energy also depends on the construction of new, customized vessels in the United States**. **Technology must also find ways to address uncertainties associated with connecting to the electrical grid and finding ways to¶ assemble turbines at nearby land locations just prior to installation in the seabed.¶** DOE recognizes that **the advancement of offshore wind energy will require "technologies that are substantially different from those employed in land-based installations," and technology must "be tailored to U.S. offshore requirements, which differ from those in the European** North **Sea** environment."[65] Such an endeavor will require the attention of stakeholders from public, private, and nonprofit organizations in order to help the United States harness its vast offshore wind resources.

Offering subsidies won't solve – Delays (Regulations)

Regulations are seen by developers as inconsistent and time consuming – this elevates the perception of costs and risk, chilling investment

Copping, PhD in Oceanography for University of Washington and researcher for Pacific Northwest National Laboratory's Marine Sciences Laboratory, 2010
(Andrea, "Offshore Wind Energy Permitting: A Survey of U.S. Project Developers," *DOE Report*, November, Online: http://www.pnl.gov/main/publications/external/technical_reports/pnnl-20024.pdf)

Developers reported that experience with offshore wind project permitting was "fairly **painful**", "extremely **challenging**", "overly **arduous**", "relative easy because it‟s in state waters", "**uncertain and** unnecessarily **slow", and "poorly defined resulting in unnecessarily large investment risk because sites can‟t be secured". Developers reported a disconnect between support at the top of Bureau of Ocean Energy Management**, Regulation, and Enforcement (BOEMRE; formerly Minerals Management Service) **and slowing of progress to a standstill at the permit processing level within agencies, shifting requirements** ("we saw goalposts move constantly"), and that "state permitting is relatively straight forward and easy [compared to the federal process]". **Developers noted that clear instructions from agencies were often lacking as many state or federal agencies are developing a permitting process at the same time they are trying to permit the first wave of projects**. **Developers also noted a lack of deadlines and review timelines for response from federal agencies and expressed frustration with this additional uncertainty**.1 Generally, developers working at the state level, in various states, expressed less discontent with the permitting process. **Frustration with the federal permitting process was common to all respondents working at the federal level.**

Regulatory delays deter investors

Investors perceive regulatory delays – they won't invest because it undermines their chances of getting tax credits.

Walsh, Law Clerk for the Superior Court of Connecticut, 2013
(Kevin, "Renewable Energy Financial Incentives: Focusing on Federal Tax Credits and the Section 1603 Cash Grant: Barriers to Development," *environs*, 36:2, Online: http://environs.law.ucdavis.edu/issues/36/2/walsh.pdf)

NEPA and EIS requirements do not take into account the time-sensitive nature of renewable energy projects and Congress' legislative inconsistency. Current tax credit and grant **extensions are usually only for one to three years**. An EIS statement, however, takes on average three years to complete. This means that **a project cannot be placed into service until the final EIS statement is submitted and a decision that the project may commence is made. The time period for EIS statements makes investors uneasy because the credit**/grant **may lapse by the time the project is placed in service.**¶ This distinction is important **because if the project is placed into service after the credit**/grant **has lapsed, the investor cannot take advantage of the credit**/grant, even if the credit/grant was available at the beginning of the project. **This makes developers and investors reluctant to invest and stunts renewable energy development.** One way to provide developers and investors more certainty is to extend the credit/grant for a period of at least five years to account for the NEPA requirements.¶ **There are also state level requirements that may need to be met before a renewable energy project is placed into service. If such requirements exist, this may further deter investors from taking risks in renewable energy projects.** This all depends on how complex and how much time the state level requirements take. Our analysis turns here.

Answers to: Subsidies encourage investors

Funding is a secondary concern – projects can't even get off the ground because of bureaucratic brambles.

Zeller, Journalism Fellow at MIT, 2013
(Tom, Cape Wind: Regulation, Litigation And The Struggle To Develop Offshore Wind Power In The U.S.," *Huffington Post*, March 1, Online: http://www.huffingtonpost.com/2013/02/23/cape-wind-regulation-liti_n_2736008.html)

To help expedite matters, DOE in December announced some $168 million in funding over the next six years for seven offshore demonstration projects. And that funding came on the heels of the Department of Interior's first-ever plans to open up some 164,000 acres along the Atlantic coast for lease sales to commercial offshore wind power developers.¶ The move is part of the Obama administration's "Smart from the Start" program, launched in 2010 -- not long after final federal approval for Cape Wind was issued -- **and is designed to speed offshore wind power development off the Atlantic Coast. "The Cape Wind lease is an historic milestone in America's renewable energy future, but to fully harness the economic and energy benefits of our nation's vast Atlantic wind potential we need to implement a smart permitting process that is efficient, thorough, and unburdened by needless red tape,"** Salazar said at the time.¶ **But that program would only help to speed up leasing for offshore wind. In most cases, projects would still need to undergo a full environmental review -- and the agonizingly protracted scoping and litigation that so often comes with it**.¶"I was very happy to see it," said Duffy, the attorney and vice president of the Cape Wind project, referring to the Smart from the Start program. "But **it doesn't address the conflicting positions of different agencies or the possibility of multiple agency appeals, perhaps even in different courts. It still doesn't put a time limit on things."¶** Reform advocates **at** Common Good have pointed to **other countries with flourishing renewable energy industries,** including Great Britain, Denmark and Germany, where **processes for regulating and permitting clean energy projects were designed** in many cases **from the ground up**. These so-called **one-stop shop systems identify a single government agency as the designated handler of renewable project permitting, and as the sole interface between developers and the government. Strict timelines are in place** for reviewing the impacts and considering alternatives, and an ample but clearly defined window for public input and court challenges keeps proposals from becoming bogged down in endless litigation.

Off Case

Privatization Counterplan

Privatization Counterplan 1NC

We advocate the following counterplan:

The United States federal government should cease to subsidize the wind energy industry, specifically by failing to renew the investment and production tax credits.

This is the best way to solve – forcing wind energy companies to compete without assistance encourages innovation and efficient production practices.

Jenevein, CEO of Tang Energy Group, 2013
(Patrick, "Wind-Power Subsidies: No Thanks," *The Wall Street Journal*, April 1, Online: http://online.wsj.com/news/articles/SB10001424127887323501004578386501479255158)

The Department of Energy admits that this trend is due at least in part to the 2009 federal subsidy: Because the grants that companies receive aren't based on how much power they produce, "it is possible that developers have seized this limited opportunity to build out the less-energetic sites." Meanwhile, wind-power prices have increased to an average $54 per megawatt-hour, compared with $37 in 2005.¶ If our communities can't reasonably afford to purchase and rely on the wind power we sell, it is difficult to make the moral case for our businesses, let alone an economic one. **Yet as long as these subsidies and tax credits exist, clean-energy executives will likely spend most of their time pursuing advanced legal and accounting methods rather than investing in studies, innovation, new transmission technology and turbine development**.¶ A quick glance at the American Wind Energy Association's website illustrates this. In July, the association is planning a Capitol Hill event aimed at "educating legislators" on the importance of industry tax credits. Never mind improving the underlying fundamentals of the wind business.¶ My own company began by delivering clean energy (in the form of natural gas) to rural China, where families still used animal dung for cooking fuel. We entered the wind business in the late 1990s, when a wind-turbine company asked us to provide electricity from its site when the wind wasn't blowing. Years later, we oversaw a similar project but in reverse: In 2008, without a government subsidy, we built a wind farm in Lubbock, Texas, to supplement at lower costs the delivery of electricity to a cottonseed-oil company.¶ **Such projects are likely the industry's future. Wind energy will make marginal—not revolutionary—contributions**. The industry's success in Texas (where my company is based, and which is the nation's largest and cheapest producer of wind power) suggests that wind farms do make sense in relatively windy areas where electricity shortages occur.¶ But **policy matters**. **California, which isn't located in the "wind belt," is America's second-largest wind-energy producer but also its costliest. The state's high costs are** partly **due to "aggressive renewable energy policies . . . that give developers a strong negotiating position,"** according to the Department of Energy report.¶ **The wind industry has largely been out-competed by natural gas, which has proved to be a clean, reliable and cheap power source for the future without subsidies or even venture-capital funding**. As such, my company isn't planning any new investments in the wind business, even though we would love to still be worth the $2 billion we were several years ago.¶ Of course, we could yet be proven wrong by technological innovation. **Without subsidies, the wind industry would be forced to take a hard fresh look at its product. Fewer wind farms would be built, eliminating the market-distorting glut. And if there is truly a need for wind energy, entrepreneurs who improve the business's fundamentals will find a way to compete**.

Banning subsidies solves – Jobs shift to strong industries

Jobs provided by the wind industry would shift to more productive energy sectors if wind declined.

Loris, policy analyst at The Heritage Foundation, 2011
(Nicolas, "Gone with the Wind Subsidies," *The Foundry*, December 9, Online: http://blog.heritage.org/2011/12/09/gone-with-the-wind-subsidies/)

That 2.2 cents doesn't sound like much, but it is on average 40 percent of the wholesale price of electricity. Treasury says **the tax credits costs taxpayers $1.5 billion annually.** This is uncalled for. Not only is **the nation facing $15 trillion of debt, but it already has access to ample supplies of diverse electricity sources that are perfectly capable of meeting our energy demands so long as government gets out of the way**. Not only are the subsidies not needed, but they do not work. So regardless of our debt problems, taxpayers shouldn't be subsidizing any energy source.¶ Artificially Creating Politically Preferred Jobs and More Lobbying Jobs Will Not Grow Our Economy¶ **Wind-energy advocacy groups are on their megaphones screaming that without the extension of the tax credits, thousands of jobs will be lost. This is a half true, at best.¶ Subsidizing uneconomical industries, as** perhaps **the wind-energy tax credit has done for two decades, shifts labor and capital away from other sectors of the economy. Removing the subsidy would free up these resources to be more productive elsewhere in the U.S. economy.** In the process, **jobs that rely on taxpayer handouts would likely go away. But the newly available resources could then go toward the likely creation of more and better jobs.**

Banning subsidies solves – Forces companies to compete

Subsidies harm renewable energy production – they promote inefficient companies and artificially reduce energy prices. Forcing an industry to adapt without government support is the only way to make it successful – it's proven by the solar industry.

Nahi, CEO of Enphase Energy, 2013
(Paul, "Government Subisides: Silent Killer of Renewable Energy," *Forbes*, Feb 14, Online: http://www.forbes.com/sites/ciocentral/2013/02/14/government-subsidies-silent-killer-of-renewable-energy/)

Healthy companies depend upon sound business models in a competitive environment. Lousy companies that are limping along on subsidies will slow the growth of the industry. If a product is well designed and meets the needs of the consumer, it will find success in a market economy. In that same market, the real costs of the product are accounted for in a company's profit margin. **That is not true of traditional energy companies**. Complex and arcane **tax laws are used to subsidize these corporations and obscure the true cost of energy. Government subsidies effectively transfer a portion of the costs to taxpayers, enabling artificially low prices and inflated profits**.¶ Equally dangerous is the government's direct investment in private companies. Much has been made of the current administration's investments in certain renewable energy companies, some of which failed. The politically motivated headlines concerning these investments may serve as a rallying cry for critics, but they fail to identify the fundamental mistake. **If the administration is trying to cultivate a new industry** by leveling a playing field, **it needs to focus on demand creation and not try to manage supply.** In doing so, **it will unleash talented entrepreneurs – as well as the investors willing to back them. Some companies will survive, others will not. But those that do will have the essential ingredients for sustained success**.¶ There is absolutely a role for government in technology development. Most companies, especially young ones, cannot afford to invest in basic research. The time frames are long, and only a small portion of the research results in commercially viable products. Yet, this research is the foundation of future industries. Investment in basic research, through our universities and research institutions, that yields licensable technologies, is a more prudent path for the allocation of public resources.¶ The confusion behind energy subsidies coupled with slanted media coverage has resulted in a myth that solar power is not cost competitive and is dependent on government subsidies. This is simply false.¶ In many parts of the country today, solar energy is less expensive than conventional forms of energy, creating consumer demand for solar to reduce monthly energy bills. And the solar industry is both an affordable and sustainable source of clean energy, and a significant job creator. The U.S. solar workforce today is around 120,000 strong and growing.¶ The facts are clear. The costs of development and production of fossil fuel energy have been underwritten with our tax dollars to the benefit of a few traditional energy companies. If we build the true costs into the price of all energy, solar power is not only competitive, it's cheaper. However we will only see that truth if we remove direct and indirect energy subsidies.¶ **We have a strong market** for solar power today. We have a willing market, **the necessary technology, and an undisputable imperative to create a cleaner, safer planet**. I'm committed to leading a company that delivers the best technology and service. **We will continue to revolutionize power generation on a global scale, one kilowatt hour at a time. But a robust, renewable energy market will remain hampered if the energy industry continues to chase the next subsidy. For the good of our energy future, subsidies for all energy must eventually end.**

Answers to: Subsidies key to widespread implementation

Wind companies are used to exploiting government subsidies – turbines will be built and left to rot unless they are forced to compete in the free market.

Newman, Writer for The New American, 2011
(Alex, "Wind Turbines & "Green" Subsidies Under Fire," *The New American*, Online: http://www.thenewamerican.com/tech/energy/item/7116-wind-turbines-green-subsidies-under-fire)

Despite billions in taxpayer subsidies pumped into the so-called "green-energy" industry, almost 15,000 windmills — maybe more — have been left to rot across America. And while the turbines have been abandoned over a period of decades, the growing amount of "green junk" littering the American landscape is back in the headlines again this week.¶ Across the country, subsidized wind farms are meeting increasing resistance — and not just from taxpayers and electricity consumers forced to foot the bill. "**If wind power made sense, why would it need a government subsidy in the first place?"** wondered Heritage Foundation policy analyst Ben Lieberman, who deals with energy and environmental issues. **"It's a bubble which bursts as soon as the government subsidies end." It turns out that wind power is expensive and inefficient even in the best wind-farm locations in the world**. And regular power plants always need to be on standby in case there is no wind, not enough wind, or even too much of it — a fairly regular occurrence. **That is why, when the tax subsidies run out, the towering metallic structures are often simply abandoned**. In their wake: a scarred landscape and dead wildlife — the very same ills offered as justifications by administration officials for preventing oil exploration. **"Wind isn't the most important thing about wind turbines. It is all about the tax subsidies. The blades churn until the money runs out,"** noted Charleston Daily Mail columnist Don Surber last week. "If an honest history is written about the turn of the 21st century, it will include a large, harsh chapter on how **fears about global warming were overplayed for profit by corporations**."

Answers to: Wind will collapse without subsidies

The wind industry will adapt without subsidies – if it's a competitive energy source, it will succeed on its own.

Loris, economic fellow at The Heritage Foundation, 2012
(Nicholas, "Blowing More Taxpayer Money for Offshore Wind," *Heritage Foundation*, Online: http://blog.heritage.org/2012/12/13/blowing-more-taxpayer-money-for-offshore-wind/)

Higher costs for a technology should not be a signal for the government to step in and try to lower those costs to make the politically preferred technology competitive. By attempting to force government-developed technologies into the market, the government diminishes the role of the entrepreneur and crowds out private-sector investment. This practice of the government picking winners and losers denies energy technologies the opportunity to compete in the marketplace, which is the only proven way to develop market-viable products.¶ **When the government attempts to drive technological commercialization, it circumvents this critical process**. Thus, almost without exception, it fails in some way. This is true with renewable technology, fossil fuel technology, or technologies pushed forward by the DOE to make businesses and homes more energy efficient.¶ **The same reasoning holds true for why Congress should not extend the wind production tax credit. An extension would perpetuate America's addiction to energy subsidies and create technological stagnation that adversely affects the long-term competitiveness of the wind industry.**¶ Providing another year of tax credits would be a $12 billion taxpayer-funded mistake that would further distort the electricity markets and, on net, cause economic harm by shifting labor and capital toward windmill production and away from more economically valuable investments. **If the windmills add value to the economy, they won't need the subsidy.**¶ **All of these subsidy programs continually ignore the fact that we are always going to have a demand for electricity—and we have ample supply from a variety of sources to meet that demand. The resources and technologies that can most efficiently meet that demand will all almost certainly have one thing in common: They won't need a government program to be successful.**

Answers to: Subsidies key to spark investment

Subsidies encourage dependence on government money rather than private investors – that prevents wind from being implemented nation-wide.

Loris, policy analyst at The Heritage Foundation, 2011
(Nicolas, "Gone with the Wind Subsidies," *The Foundry*, December 9, Online: http://blog.heritage.org/2011/12/09/gone-with-the-wind-subsidies/)

The year **2012 marks a monumental yet depressing milestone for the wind energy industry: 20 years of tax credits.¶ The federal renewable energy production tax credit,** which **allows wind producers to take a 30 percent investment tax credit or receive a 2.2-cents-per-kilowatt-hour** production **tax credit, has been around since 1992. The tax credit expires at the end of 2012, and the wind energy advocates are already ramping up their efforts to include an extension** in any end-of-the-year must-pass legislation. It's time to let this wasteful, unnecessary subsidy run out.¶ The Wrong Way to Promote Technology¶ Let's take it back to 1992. The parents are watching Murphy Brown, the kids are watching Full House, and people are rockin' out to Nirvana and Dr. Dre. (Some things never change.) And **wind was ready to usher in a new era of energy production**. In fact, Matthew Wald wrote in a 1992 New York Times article, "A New Era for Windmill Power," that "striking improvements in technology, the commercial use of these windmills, or wind turbines as the builders call them, has shown that in addition to being pollution free, they can now compete with fossil fuels in the cost of producing electricity."¶ He went on: "Kingsley E. Chatton, president of U.S. Windpower, which operates 22 new-generation windmills here, said the economics of wind power was at the point where it 'will compete with fossil fuel.' Others agree."¶ **Twenty years of subsidies later, wind still only provides a paltry 2.3 percent of America's electricity in 2010, and it still needs subsidies.¶** Jim Nelson, CEO of Solar3D, argues that **government subsidies are obstructing innovation in the renewable-energy sector:¶ Operating subsidies, or installation subsidies, helps get clean energy sources installed but the problem is that current technology is not economically competitive. Everything we do needs to be done with a view toward global competitiveness**. Unfortunately, **because current technology is not economical relative to alternatives, it does not promote our competitiveness.¶** The problem is that **subsidies promote technological malaise. They take away the incentive to innovate and lower cost by promoting business models geared more toward gaining favor with politicians than on technological innovation. The result is that subsidized industries quickly become dependent on government.** At that point, **long-term competitiveness becomes secondary to near-term survival, which is generally conditioned on more handouts.** Thus when the government support is threatened, the propped-up industry responds with pleas for more handouts. **Recognizing that their survival depends more on securing subsidies than on technological innovation, subsidized industries reject such investments to the extent that they too are not subsidized by government**. Hence, **the vicious cycle of subsidies inevitably result in technological stagnation.**

Answers to: Subsidies help wind compete with fossil fuels

Fossil fuels have received small subsidies since 2008 – renewable energy industries like wind have the unfair advantage now.

Hargreaves, CNN reporter, 2012
(Steve, "Energy subsidies total $24 billion, most to renewables," *CNN*, March 7, Online: http://money.cnn.com/2012/03/07/news/economy/energy-subsidies/)

The federal government spent $24 billion on energy subsidies in 2011, with the vast majority going to renewable energy sources, according to a government report.¶ **Renewable energy and energy efficiency accounted for $16 billion of the federal support,** according to the Congressional Budget Office, **while the fossil-fuel industry received $2.5 billion in tax breaks.¶ This is a stark change from a decade ago.** The CBO noted that **until 2008, most energy subsidies went to the fossil-fuel industry. The idea at the time was to encourage more domestic oil production, especially when the price of oil was low.¶** CBO said the $24 billion total is a small fraction of the hundreds of billions the government's various annual subsidies, which take the form of both grants and tax breaks.¶ The report, released Tuesday, comes amid intense debate over energy policy in Washington.¶ The Obama administration has repeatedly called for the elimination of tax breaks for oil companies, saying the near-record profits reaped by the industry no longer justify such tax breaks.

Turbine Construction Disadvantage

Turbine Construction Disadvantage 1NC

A. Increased use of turbines would increase demand for rare earth metals from China.

Driessen, Senior Policy Advisor for the Committee for a Constructive Tomorrow, 2012
(Paul, Wind Power: Questionable Benefits, Concealed Impacts; The Epoch Times, online: http://www.theepochtimes.com/n2/opinion/wind-power-questionable-benefits-concealed-impacts-52864.html)

Over 95 percent of global rare earth production occurs in China and Mongolia, using their technology, coal-fired electricity generation facilities and environmental rules. Extracting neodymium, praseodymium, and other rare earths for wind turbine magnets and rotors involves pumping acid down boreholes, to dissolve and retrieve the minerals. Other acids, chemicals, and high heat further process the materials. Millions of tons of toxic waste are generated annually and sent to enormous ponds, rimmed by earthen dams.¶ Leaks, seepage, and noxious air emissions have killed trees, grasses, and crops and cattle, polluted lakes and streams, and given thousands of people respiratory and intestinal problems, osteoporosis, and cancer.¶ **In 2009, China produced 150,000 tons of rare earth metals—and over 15,000,000 tons of waste. To double current global installed wind capacity, and produce rare earths for photovoltaic solar panels and hybrid and electric cars, China will have to increase those totals significantly**—unless Molycorp and other companies can rejuvenate rare earth production in the United States and elsewhere, using more modern methods.

B. Rapid increases in demand will cause China to cut off rare earth mineral exports – they want to maintain supplies for Chinese manufacturers.

Moss et. Al, Institute for Energy and the Hague Centre for Strategic Studies, 2011
(R.L.Moss1, E.Tzimas1, H.Kara2, P.Willis2 and J.Kooroshy3, "Critical Metals in Strategic Energy Technologies", Online: http://www.oakdenehollins.co.uk/media/242/CriticalMetalsinSET.pdf)

Such bottlenecks could disrupt a timely and affordable supply of these metals to Europe in the future and potentially hinder the smooth deployment of SETPlan technologies and the realisation of the EU 2020 targets. In this context, it is important to note that significant SETPlan demands for a specific metal on itself do not necessarily constitute a problem. Demand for raw materials changes constantly as technologies and consumption patterns change over time. This creates incentives for adapting supply, so that the market balance is restored. However, such adaptation processes can be very time-consuming, for example, when it takes many years to open new mines. **If demand expands rapidly and supply is unable to keep pace in the short to medium term, bottlenecks in the form of price rises and supply shortages can be the consequence**. In cases where only a few countries control the production of an individual metal under tight market conditions, bottlenecks can also be exacerbated through political interventions by governments. **Dominant producers may, for example, use their market power to gain political or commercial advantages through influencing supply and prices or imposing trade restrictions. A good example of how disruptive such bottlenecks can be is the case of rare earths**. Given the challenging economic and technical obstacles involved in opening new rare earths mines, supply has struggled to grow considerably even though demand has been booming over the past decade. b In parallel, **China has been systematically tightening export quotas that favour domestic rare earth consuming**

industries over competitors in the rest of the world, resulting in 2010, in **a tight market and driving up prices**. China implemented strict measures to consolidate a weakly regulated industry with many small scale operations that routinely ignore safety, environmental and export regulations; and a temporary halt of rare earth exports to Japan was imposed to exert political pressure in the context of a diplomatic dispute. Taken together, this combination of political and market factors have resulted in considerable supply shortages and price rises for rare earths over the course of 2010.c Indeed, even at the time of writing, there have been further substantial increases in the price of some rare earth oxides (especially dysprosium oxide) in 2011 alone.

C. That undermines our military, which depends on rare earth minerals for radar, weapons guidance, and other key capabilities.

Kennedy, President of Wings Enterprises, 2010
(J. Kennedy, March, "Critical and Strategic Failure of Rare Earth Resources," Online: http://www.smenet.org/rareEarthsProject/TMS-NMAB-paperV-3.pdf)

The national defense issues are equally important. **Rare earths are critical components for military jet engines, guided missiles and bombs, electrical countermeasures, anti-missile systems, satellite communication systems and armor**, yet the U.S. has no domestic sources.¶ Innovation Drives Industry – Industry Carries the Economy¶Advances in Materials Science are a result of tireless innovation; innovation seeking improvements in the performance and characteristics of material properties or a change in their form or function. Much of this work must eventually translate into commercial and military applications. **Today many advances in material science are achieved through the application of rare earth oxides, elements and alloys**. This group of elements, also known as the lanthanide series, represents the only known bridge to the next level of improved performance in the material properties for many metallurgical alloys, electrical conductivity, and instrument sensitivity and in some cases a mechanical or physical change in function. **These lanthanides hold unique chemical, magnetic, electrical, luminescence and radioactive shielding characteristics**. Combined with other elements they can help maintain or alter physical and structural characteristics under changing conditions.¶**Today, these rare earth elements are essential to every computer hard drive, cell phone, energy efficient light bulb, many automotive pollution control devices and catalysts, hybrid automobiles and most, if not all, military guidance systems and advanced armo**r.¶Tomorrow, they will be used in ultra capacity wind turbines, magnetic refrigeration, zero emission automobiles, superconductors, sub-light-speed computer processors, nano-particle technologies for material and metallurgical applications, structurally amorphous metals, next generation military armor and TERFENOL-D Radar. America must lead in these developments.¶**The entire U.S. defense system is completely interdependent upon REO enhanced technologies for our most advanced weapons guidance systems, advanced armor, secure communications, radar, advanced radar systems, weapons triggering systems and un-manned Drones. REO dependent weapons technologies are predominantly represented in our 'first strike' and un-manned capabilities**. This national defense issue is not a case of limited exposure for first-strike capabilities. **This first-strike vulnerability translates into risk exposure in every level of our national defense system, as the system is built around our presumptive technological and first-strike superiority**. Yet the DoD has abandon its traditional procurement protocols for "strategic and critical" materials and components for weapons systems in favor of "the principles of free trade."

Impact add-on: Environment

Wind turbines harm bird species and require rare earth minerals to function – mining these destroys the environment and causes public health crises.

Fisher and Fitzsimmons, Analysts at The Institute for Energy Research, 2013
(Travis and Alex, "Big Wind's Dirty Little Secret: Toxic Lakes and Radioactive Waste," *Institute for Energy Research,* October 23, Online: http://www.instituteforenergyresearch.org/2013/10/23/big-winds-dirty-little-secret-rare-earth-minerals/)

The wind industry promotes itself as better for the environment than traditional energy sources such as coal and natural gas. For example, the industry claims that wind energy reduces carbon dioxide emissions that contribute to global warming.¶But there are many ways to skin a cat. As IER pointed out last week, **even if wind curbs CO2 emissions, wind installations injure, maim, and kill hundreds of thousands of birds each year in clear violation of federal law. Any marginal reduction in emissions comes at the expense of protected bird species**, including bald and golden eagles. The truth is, all energy sources impact the natural environment in some way, and life is full of necessary trade-offs. The further truth is that affordable, abundant energy has made life for billions of people much better than it ever was.¶**Another environmental trade-off concerns the materials necessary to construct wind turbines. Modern wind turbines depend on rare earth minerals mined primarily from China. Unfortunately, given federal regulations in the U.S. that restrict rare earth mineral development and China's poor record of environmental stewardship, the process of extracting these minerals imposes wretched environmental and public health impacts on local communities**. It's a story Big Wind doesn't want you to hear.¶Rare Earth Horrors¶**Manufacturing wind turbines is a resource-intensive process. A typical wind turbine contains more than 8,000 different components,** many of which are made from steel, cast iron, and concrete. **One such component are magnets made from neodymium and dysprosium, rare earth minerals mined almost exclusively in China**, which controls 95 percent of the world's supply of rare earth minerals. ¶Simon Parry from the Daily Mail traveled to Baotou, China, to see the mines, factories, and dumping grounds associated with China's rare-earths industry. What he found was truly haunting:¶**As more factories sprang up, the banks grew higher, the lake grew larger and the stench and fumes grew more overwhelming.¶'It turned into a mountain that towered over us,' says Mr Su. 'Anything we planted just withered, then our animals started to sicken and die.'¶People too began to suffer. Dalahai villagers say their teeth began to fall out**, their hair turned white at unusually young ages, **and they suffered from severe skin and respiratory diseases. Children were born with soft bones and cancer rates rocketed**.¶Official studies carried out five years ago in Dalahai village confirmed there were unusually high rates of cancer along with high rates of osteoporosis and skin and respiratory diseases. The lake's radiation levels are ten times higher than in the surrounding countryside, the studies found.¶**As the wind industry grows, these horrors will likely only get worse. Growth in the wind industry could raise demand for neodymium by as much as 700 percent over the next 25 years, while demand for dysprosium could increase by 2,600 percent, according to a recent MIT study. The more wind turbines pop up in America, the more people in China are likely to suffer due to China's policies**. Or as the Daily Mail put it, **every turbine we erect contributes to "a vast man-made lake of poison in northern China.**"

Impact add-on: China War

A supply bottleneck causes War with China
Anthony, 2012

(Lead editor at Ziff Davis, Inc. Owner at SA Holdings Past Columnist at Tecca Editor at Aol (Weblogs, Inc) Educationm University of Essex, http://www.extremetech.com/extreme/111029-rare-earth-crisis-innovate-or-be-crushed-by-china/2)

The doomsday event that everyone is praying will never come to pass, but which every Western nation is currently planning for, **is the eventual cut-off of Chinese rare earth exports.** Last year, 97% of the world's rare earth metals were produced in China — but over the last few years, **the Chinese government has been shutting down mines,** ostensibly **to save what resources it has**, and also reducing the amount of rare earth that can be exported. Last year, China produced some 130,000 tons of rare earths, but export restrictions meant that only 35,000 tons were sent to other countries. As a result, demand outside China now outstrips supply by some 40,000 tons per year, and — as expected — many countries are now stockpiling the reserves that they have. **Almost every Western country is now digging around in their backyard** for rare earth-rich mud and sand, but it'll probably be too little too late — and anyway, due to geochemistry, there's no guarantee that explorers and assayers will find what they're looking for. The price of rare earths are already going up, and so are the non-Chinese-made gadgets and gizmos that use them. Exacerbating the issue yet further, as technology grows more advanced, **our reliance on the strange and magical properties of rare earths increases** — and China, with the world's largest workforce and a fire hose of rare earths, is perfectly poised to become the only real producer of solar power photovoltaic cells, computer chips, and more. In short, China has the world by the short hairs, and when combined with a hotting-up cyber front, **it's not hard to see how this situation might devolve into World War III**. The alternate, ecological point of view, is that we're simply living beyond the planet's means. Either way, strategic and logistic planning to make the most of scarce metals and minerals is now one of the most important tasks that face governments and corporations. Even if large rare earth deposits are found soon, or we start recycling our gadgets in a big way, the only real solution is to somehow lessen our reliance on a finite resource. Just like oil and energy, this will probably require drastic technological leaps. Instead of reducing the amount of tantalum used in capacitors, or indium in LCD displays, we will probably have to discover completely different ways of storing energy or displaying images. My money's on graphene.

Nuclear conflict with China is an EXISTENTIAL risk – causes nuclear winter
Wittner, Prof of History Emeritus at SUNY Albany, 2011

(Dr. Lawrence, "Is a Nuclear War with China Possible?," November 30, Online: http://www.huffingtonpost.com/lawrence-wittner/nuclear-war-china_b_1116556.html)

But what would that "victory" entail? **An attack with these Chinese nuclear weapons would immediately slaughter at least 10 million Americans in a great storm of blast and fire, while leaving many more dying horribly of sickness and radiation poisoning. The Chinese death toll in a nuclear war would be far higher.** Both nations would be reduced to smoldering, radioactive wastelands. Also, **radioactive debris sent aloft by the nuclear explosions would blot out the sun and bring on a "nuclear winter" around the globe -- destroying agriculture, creating worldwide famine, and generating chaos** and destruction. Moreover, in another decade the extent of this catastrophe would be far worse. **The Chinese government is currently expanding its nuclear arsenal**, and by the year 2020 it is expected to more than double its number of nuclear weapons that can hit the United States. The U.S. government, in turn, has plans to spend hundreds of billions of dollars "modernizing" its nuclear weapons and nuclear production facilities over the next decade.

Answers to: Other industries use rare earth minerals

Other industries don't require as much neodymium and can be recycled – only wind turbines drive the creation of new mines.

Clancy, Contributor to Forbes, 2014
(Heather, Rare Earth Recycling Takes On New Luster, online: http://www.forbes.com/sites/heatherclancy/2014/02/25/rare-earth-recycling-takes-on-new-luster/print/)

In most cases, the materials will go to less critical applications. For example, **it would be odd to see the high grade neodynium from wind turbines be put back into the same application as its original use.¶ Notes Kachan in his report**:¶ **Recycling is perhaps the best route forward for elements where demand is expected to level off in the long run. Expect demand for terbium and europium, for example, to fade** as fluorescent bulbs are eventually replaced with much smaller LEDs. **But for other elements, like neodymium, new supply is needed. Currently only tiny amounts of neodymium are required for ear-buds of smartphones—but high-performance wind turbines need about two tons each. But it's only these sort of large quantity applications that are expected to drive the need for new mines**.

Answers to: No supply shortage – other countries produce rare earth minerals

China controls rare earth mineral market – that's because they don't have environmental regulations on mining so it's cheaper to produce.

Paramaguru, Staff Writer for TIME Magazine, 2013
(Kharunya, "Rethinking Our Risky Reliance on Rare Earth Metals," Time, December 20, Online: http://science.time.com/2013/12/20/rare-earths-are-too-rare/)

While we are not running out of rare earths yet, what could be a problem is the amount of energy and money required to extract them—to a point where it could no longer be economically viable to use them as part of modern industrial design. This also has problems, as the use of rare earths has allowed designers to employ a wider pallet of materials to improve efficiency and produce more environmentally friendly designs, as seen in more efficient modern jet engines. **Rare earths have also become important to renewable energy technology: neodymium, terbium and dysprosium are used in the magnets of wind turbines** and electric and hybrid cars contain about 10 to 15 pounds more of rare earths than a standard car.¶ **However increased mining for these scarce resources can have some nasty side effects for the environment. China, which has intensively mined for rare earths with little regulation, allowing it to dominate the global industry since 1990, has acknowledged the incredible environmental harm caused by the process. "Excessive rare earth mining has resulted in landslides, clogged rivers, environmental pollution emergencies and even major accidents and disasters, causing great damage to people's safety and health and the ecological environment," read a white paper issued by the Chinese cabinet in June last year**. The government is now spending billions of dollars attempting to clean up this damage, and on Dec. 13 Beijing signalled once again that it would seek to cut exports of rare earths—although some critics have accused China of using environmental concerns as an excuse to use its control of the rare earths market to punish countries it doesn't like, such as Japan.

Answers to: Wind is cleaner than fossil fuels

Proponents of wind energy ignore environmental harm caused by every step of construction and implementation – wind just displaces pollution to other countries that produce the parts.

Driessen, Senior Policy Advisor for the Committee for a Constructive Tomorrow, 2012
(Paul, "Wind Power: Questionable Benefits, Concealed Impacts," *The Epoch Times*, Online: http://www.theepochtimes.com/n2/opinion/wind-power-questionable-benefits-concealed-impacts-52864.html)

Turbines require enormous quantities of concrete, steel, copper, fiberglass, and rare earth minerals—all of which involve substantial resource extraction, refining, smelting, manufacturing, and shipping. Land and habitat impacts, rock removal and pulverizing, solid waste disposal, burning fossil fuels, air and water pollution, and carbon dioxide emissions occur on a large scale during every step of the process.¶Over 95 percent of global rare earth production occurs in China and Mongolia, using their technology, coal-fired electricity generation facilities and environmental rules. **Extracting neodymium, praseodymium, and other rare earths for wind turbine magnets and rotors involves pumping acid down boreholes, to dissolve and retrieve the minerals. Other acids, chemicals, and high heat further process the materials. Millions of tons of toxic waste are generated annually and sent to enormous ponds, rimmed by earthen dams**.¶**Leaks, seepage, and noxious air emissions have killed trees, grasses, and crops and cattle, polluted lakes and streams, and given thousands of people respiratory and intestinal problems, osteoporosis, and cancer**.

Answers to: Offshore rigs protect the environment

Offshore wind rigs offer a host of environmental risks during installation, operation, and maintenance.

Moore and Drummond, environmental insurance lawyers, 2008
(Meagan and Keven, "Offshore Wind Environmental Risks and Insurance Challenges," *Cleveland Metropolitan Bar Journal*, October, Online: http://64.118.75.138/D890EA/assets/files/documents/Offshore%20Wind%20-%20Enivronmental%20Risks%20and%20Insurance%20Challenges%20Oct13_Bar_Journal.pdf)

Although wind power offers an emission- free (at the point of use), renewable energy source, there are environmental risks related to the development and utilization of offshore wind farms. Because of the relatively new technology, the industry has not amassed a great deal of experience regarding what might go wrong in the construction of offshore wind turbines or once operation of the wind turbine commences. Accordingly, **the risks of offshore wind development are wide-ranging** and difficult to predict and to quantify; available insurance products on the market today offer only limited coverage for many of these risks.¶ The environmental risks related to the development and utilization of offshore wind farms, specifically offshore fresh waters like Lake Erie, range **from the potential effects on bird and fish populations to subsurface effects, like earthquakes or subsidence, to potential water pollution concerns should a turbine be damaged from a collision or simple wear and tear. Some of the more specific potential risks that have been identified are:**¶ 4343 **Disruption of the flight patterns of some migrating birds** due to the expansive turbine blades.¶ 4343 **Damage to fish populations as a result of construction and operation of the wind turbine and as a result of noise from wind turbine's operations**.¶ 4343 **Electromagnetic fields from underwater cables** stretched across the lake bed **could disrupt the freshwater ecosystem.**¶ 4343 **Sediment** in a lake bed **could be disturbed** as a result of the construction process.¶ 4343 **Lake water contamination could result from leakage of oil from the wind turbine due to**¶ **wear and tear of the turbine's generator, as a result of collisions with ships, or due to catastrophic events such as fire.**¶ 4343 The construction of the wind turbine farm could impact subsurface conditions and cause earth movement, subsidence, or even earthquakes.¶ 4343 **There is a potential for damage to the turbines and the lakeshore from fire, electrical shock or other problems from the large underwater cables** being stretched along the lake bed.

Answers to: Climate change outweighs species loss

You should prioritize small-scale environmental damage over climate change – biodiversity is key to resilience and global survival.

Crist, professor of Science and Technology in Society at Virginia Tech, 2006
(Eileen, "Beyond the Climate Crisis: a Critique of Climate Change Discourse," *Telos*, Winter, pg. 29-55, Online)

The biosphere is experiencing gross decline or elimination of areas that are, in certain cases, centers of diversification— most notably, tropical forests, wetlands, mangrove forests, and coral reefs everywhere. **The whittling down of ecological complexity has been a global trend proceeding from the conversion of ecosystems for intensive human uses**, the aforementioned population depletions, and the invasion of nonnative species. Nonnative species are the generalists hitching rides in the bustle of globalization—from the climate-change-favored fungus that is killing frogs, to millions of domestic cats preying on birds, to innumerable more.26 Human-facilitated invasions, coupled with the disappearance of natives, lead to places losing the constellation of life-forms that once uniquely constituted them. **The inevitable outcome of extinction, plummeting populations, lost** and simplified **ecosystems**, and a bio-homogenized world **is not only the global demolition of wild nature, but also the halting of** speciation of much complex **life**. **The conditions for the birth of new species** within a wide band of life, especially of large-bodied species that reproduce slowly, **are being suspended**.27 All **these interconnected dimensions constitute** what conservation biologists call **the biodiversity crisis**—a term that to the postmodernist rings of rhetoric, while to the broad public (insofar as it has heard anything about it) involves a largely illiterate and vague understanding of "extinction." 28 Academic frivolity and public ignorance aside, **the biodiversity crisis heralds a biospheric impoverishment that will be the condition** and experience **of all future human generations: it requires 5 to 10 million years for biodiversity to recover after a mass extinction of the current scope.** In light of this fact, I submit that unless global warming unleashes appalling penalties—in which case, the climate crisis and biodepletion will merge into one devastating event for virtually all life29—**the implications of humanity's impact on biodiversity are so far-reaching that they** may, in reality, **dwarf the repercussions of climate change**. And yet, **the current framing of climate change as the urgent issue encourages regarding the unwinding of biodiversity as a less critical matter** than the forthcoming repercussions of global warming. Attention to the long-standing ruination of biodiversity underway is subverted in two ways in climate-change discourse: either it gets elided through a focus on anthropocentric anxieties about how climate change will specifically affect people and nations; or biodepletion is presented as a corollary of climate change in writings that closely consider how global warming will cause biodiversity losses. Climate change is undoubtedly speeding up the unraveling of life's interconnectedness and variety. But if global warming has such potential to afflict the natural world, it is because the latter's "immunity" has been severely compromised. **It is on an already profoundly wounded natural world that global warming is delivering its blow. Focusing on the added blow of climate change is important, but this focus should not come at the expense of erasing from view the prior, ongoing, and climate-change-independent wounding of life on Earth**.

Nuclear Power Disadvantage

Nuclear Power Disadvantage 1NC

Nuclear power provides energy for a substantial portion of America. Giving incentives to offshore wind gives the upper hand to an intermittent energy source, straining the national power grid.

Goreman, Executive Director of the Climate Science Coalition of America, 2014
(Steve, "US Power Grid at the Limit," *The Hill*, Online: http://thehill.com/blogs/congress-blog/energy-environment/204194-us-power-grid-at-the-limit)

Nuclear generating facilities are also under attack. Many of the 100 nuclear power plants that provided 20 percent of U.S. electricity for decades can no longer be operated profitably. Exelon's six nuclear power plants in Illinois have operated at a loss for the last six years and are now candidates for closure.¶ **What industry pays customers to take its product? The answer is the U.S. wind industry. Wind-generated electricity is typically bid in electrical wholesale markets at negative prices**. But how can wind systems operate at negative prices?¶ The answer is that **the vast majority of U.S. wind systems receive a federal production tax credit (PTC) of up to 2.2 cents per kilowatt-hour for produced electricity**. Some states add an addition credit, such as Iowa, which provides a corporate tax credit of 1.5 cents per kw-hr. **So wind operators can supply electricity at a pre-tax price of a negative 3 or 4 cents per kw-hr and still make an after-tax profit from subsidies**, courtesy of the taxpayer.¶ **As wind-generated electricity has grown, the frequency of negative electricity pricing has grown**. When demand is low, such as in the morning, wholesale electricity prices sometimes move negative. In the past, negative market prices have provided a signal to generating systems to reduce output.¶ But **wind systems ignore the signal and continue to generate electricity to earn the PTC, distorting wholesale electricity markets. Negative pricing by wind operators and low natural gas prices have pushed nuclear plants into operating losses. Yet, Congress is currently considering whether to again extend the destructive PTC subsidy**.¶ **Capacity shortages are beginning to appear**. A reserve margin deficit of two gigawatts is projected for the summer of 2016 for the Midcontinent Independent System Operator (MISO), serving the Northern Plains states. Reserve shortages are also projected for the Electric Reliability Council of Texas (ERCOT) by as early as this summer.¶ **The United States has the finest electricity system in the world, with prices one-half those of Europe. But this system is under attack from foolish energy policies**. Coal-fired power plants are closing, unable to meet EPA environmental guidelines. **Nuclear plants are aging and beset by mounting losses, driven by negative pricing from subsidized wind systems. Without a return to sensible energy policies, prepare for higher prices and electrical grid failures**.

Unreliable power sources like wind cause widespread power outages, resulting in economic shocks.

Barrett, writer for the Lexington Institute, 2012
(Michael, "Ensuring the Resiliance of the U.S. Electrical Grid – Part II: Managing the Chaos – and Costs – of Shared Risks," *Lexington* Institute, Online: http://www.lexingtoninstitute.org/ensuring-the-resilience-of-the-u-s-electrical-grid-part-ii-managing-the-chaos-and-costs-of-shared-risks/)

Nonetheless, **reliability is still a concern, and is intimately tied to resilience of the system. In fact, as noted by the Galvin Electricity Initiative regarding being 99.97% reliable, "while this**

sounds good in theory, in practice it translates to interruptions in the electricity supply that cost American consumers an estimated $150 billion per year."¶As another source reports, "The grid is designed to work at least 99.97 percent of the time, but just 0.03 percent still equals an average loss of 2.6 hours of power each year for customers across the U.S." Furthermore, as CNN has reported, "**Experts on the nation's electricity system point to a frighteningly steep increase in non-disaster-related outages affecting at least 50,000 consumers… During the past two decades, such blackouts have increased 124 percent** – up from 41 blackouts between 1991 and 1995, to 92 between 2001 and 2005, according to research at the University of Minnesota."¶**But particularly pernicious is the shared nature of these risks**. For example, **too many industry players relying on the same few equipment suppliers for critical parts can result in an acute shortage after a large event. Potential transportation or supply chain interruptions further complicate the shared risks** – whether for transporting raw materials to power plants or the mobility of power crews repairing various damaged infrastructure. **It is from these kinds of unmanaged interdependencies resulting from today's complex world that the bad event can cascade into systemic collapse, as occurred following Hurricane Katrina in 2005**. Addressing such issues through strategic resilience investments presents a host of inherently cross-sector and cross-segment challenges and requires concerted public private partnership to identify and remediate the lack of flexibility and adaptability within certain key infrastructure nodes.

That makes economic collapse inevitable.

Jagdfeld, President and CEO of Generac Power Systems, 2012
(Aaron, "India-Style Blackout Could Strike The U.S." Forbes, 8-6, Online: http://www.forbes.com/sites/deborahljacobs/2012/08/06/india-style-blackout-could-strike-the-u-s/)

More people in the United States were affected by power outages last year than at any time in the industrial age. Yet **what we faced during the past year pales in comparison to the largest electrical outage in world history** that knocked out power to nearly 700 million people last week in India, crippling their economy. **The U.S. is one of the most developed nations in the world. Our day-to-day interactions are guided by technologies and innovations that rely uponthe** power **grid**. But as we continue to develop technological mastery, **our** power **grid is aging and fragile, and itssusceptibility to outages means our way of life could break down in an instant.** Unlike generations past, our lives and **businesses are now connected through a vast network of computers and data centers that consume enormous amounts of electricity**. Our homes are bigger, with more luxuries and appliances than ever. We count on power in ways our parents couldn't imagine. **Power quality is the measure of reliable power in our homes and businesses, and it has been declining steadily** since 1990. During this time, demand for power has increased by 25%, but the infrastructure needed to transmit power to homes has increased by a mere 7%. **We have become a digital society, but areburdened with an analog power grid—one that is inefficient and susceptible to weather, surging demand, and** even **terrorist attack**. Each outage comes at a cost; the average cost of a one-second outage among industrial and digital firms is about $1,477. That means **the U.S. economy loses between $104** billion **and $164 billion each year topower outages**. Losses like that affect all of us. **An outage lasting days**, as in India, **would represent hundreds of billions of dollars lost, taxing our already fragile economy.** Fixing our power grid is no simple feat. The best estimates put the price tag for a new grid at two trillion dollars, or about 14% of our current gross domestic product. There is no legitimate national plan to create a new grid, nor are there public funds available to fix the grid we have. American utility companies are as constrained as the government when it comes to meaningful investment in grid improvement. The 3,200 utility companies that touch the power grid are regulated by an equal number of agencies, many of which exist solely to minimize cost to consumers. This is undeniably good for consumers in most cases, but it has left us with a broken power grid that no one is responsible for (or capable of) fixing. To address the frequent power outages we've been experiencing, we must secure a massive commitment of resources from both public and private sectors. In the absence of such a commitment, **Americans must prepare for outages, blackouts, brownouts and chaotic power reliability**. We must commit ourselves to the knowledge that long-duration power outages are not something that happens elsewhere. India is only geographically distant from us; its current power outage is actually far closer than we might think. Preparation will take many forms. Families must have a supply of food and water that is not dependent on electricity to store or prepare. Businesses must back-up data and maintain secure facilities that don't require grid-

based power to remain viable. But these are the very first steps. What about the necessities of modern life, such as lighting, heat, air conditioning, communications, or more importantly, medical devices? For those we must turn to off-grid sources of power. There is no perfect solution to address our electrical grid's disrepair or our nation's increasingly poor power quality. Fixing the grid is staggeringly expensive at a time when our nation's budget is tight. **The cost of an** Indian-sized **outage isn't simply expensive; it's a cost we cannot bear**. Meantime, we should prepare for the next outage.

Guarantees war – prefer conclusive statistics.

Royal, Director of Cooperative Threat Reduction Program – DOD, 2010

(Jedediah, Economics of War & Peace: Legal and Political Perspectives, ed. Goldsmith &Brauer, p. 213-15)

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defencebehaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson's (1996) work on leadership cycle theory, finding that**rhythms in the global economy are associated with the** rise and **fall of a** pre-eminent **power and** the often **bloody transition** from one pre-eminent leader to the next. As such, exogenous shocks such as**economic crises could usher in a redistribution of relative power** (see also Gilpin, 1981) **that leads to uncertainty** about power balances**, increasing the risk of miscalc**ulation (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Separately, Pollins (1996) also shows the **global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers,** although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, **on a dyadic level**, Copeland's (1996, 2000) **theory of trade expectations suggests that 'future expectation of trade' is a significant variable in understanding economic conditions and security behaviour of states**. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trigger expectations either on its own or because it triggers protectionist moves by interdependent states.4 Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find**a strong correlation between internal conflict and external conflict,** particularly **during periods of economic downturn**. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external self-reinforce each other. (Blomberg& Hess, 2002, p. 89). Economic **decline** has also been **linked with** an increase in the likelihood of **terrorism** (Bloomberg, Hess, &Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. 'Diversionary theory' suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a 'rally around the flag' effect. Wang (1996, DeRouen (1995), and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of **weak economic performance in the U**nited **S**tates, **and** thus **weak President**ialpopularity,**are statistically linked to an increase in the use of force.** In summary, **recent** economic **scholarship positively correlates**economic integration with an increase in the frequency of economic crises, whereas political scholarship links **economic decline with external conflict at systemic, dyadic, and national levels.**5 This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention. This observation is not contradictory to other perspectives that link economic interdependence with a decrease in the likelihood of external conflict, such as those mentioned in the first paragraph of this chapter. As such, the view presented here should be considered ancillary to those views.

Answers to: Grid is stable

The grid is susceptible to failure – small errors in planning cuase cascading blackouts.

Plumer, 2014
(Brad, "It's way too easy to cause a massive blackout in the US," *Vox.com*, April, Online: http://www.vox.com/2014/4/14/5604992/us-power-grid-vulnerability)

Back in 2012, the National Research Council worried that a well-coordinated attack on the grid "could deny large regions of the country access to bulk system power for weeks or even months. **… If such large extended outages were to occur during times of extreme weather, they could also result in hundreds or even thousands of deaths due to heat stress or extended exposure to extreme cold."**¶ How would that work? It's worth walking through the mechanics of how **a truly massive blackout — like the 2003 Northeast blackout that left 50 million people without power — can happen.**¶**Power grids are, by their nature, extremely complex. It's hard to store electricity for any extended period. That means that the output from power plants has to be equal to the use of electricity at all times. Otherwise, power lines can get overloaded or generators underloaded, causing damage to the equipment.**¶**Usually, the grid has protective devices that switch off a piece of equipment if there's a problem. So if, say, a sagging power line hits a tree — causing it to overheat — that line will get disconnected. The problem is that all the other lines now have to carry excess current. If they start overheating and have to switch off, you can get … cascading failures.**¶ So power **grid operators have to constantly monitor the system to make sure that power generation and power use are matched up and that a single fault can't cause the entire grid to fail. They're usually very good at this. But it's a difficult task — and if, the grid is already running at capacity or a major piece of equipment falters, it can be hard to prevent "cascading failures.**" The National Research Council was worried about an attack causing this sort of cascading effect.

Answers to: Nuclear power industry already declining

Nuclear power is making a comeback – 2 plants were approved in 2012 and over 20 new plants are being reviewed by the Nuclear Regulatory Commission.

Battaglia, writer for The Energy Collective, 2013
(Sarah, "Nuclear Energy Making an Ultimate Comeback?," *The Energy Collective*, February 1, Online: http://theenergycollective.com/sbattaglia/179871/nuclear-energy-making-comeback)

The energy industry is changing all right, but it might not be headed in the direction you are expecting. Think our country will rely completely on renewable energy? Think again. **Nuclear power may actually be making its greatest comeback yet.¶Out of the 31 countries that have commercial nuclear power, the U.S. possesses the most nuclear capacity and generation, and it doesn't seem to be slowing down. For the first time in 30 years, two new reactors have gained construction approval.** In February 2012, the U.S. Nuclear Regulatory Commission (NRC) approved Southern Company's request to construct two new nuclear reactors at its Vogtle Plant in Georgia, to be operational by 2017.¶**As of the beginning of 2012, the NRC has applications for 28 new reactors**. The review process is extremely detail-oriented and typically lasts between 30 and 60 months. Although construction usually takes about 6 years, **the Energy Information Administration projects that "the industry will add approximately 19.1 gigawatts** (19,100 megawatts) **of new nuclear capacity during the period 2012 to 2040, with 11.0 gigawatts coming from new reactors and 8.0 gigawatts coming from uprates of existing plants."**

Answers to: Grid is reliable

Their evidence doesn't assume the unique pressures that wind energy puts on the power grid – wind produces will keep producing energy when it's not needed to earn tax credits, driving out stable electricity sources like nuclear power.

Goreham, Executive Director of the Climate Science Coalition of America, 2014
(Steve, "America's Power Grid at the Limit: The Road to Electrical Blackouts," April 23, Online: http://wattsupwiththat.com/2014/04/23/americas-power-grid-at-the-limit-the-road-to-electrical-blackouts/)

Nuclear generating facilities are also **under attack. Many of the 100 nuclear power plants that provided 20 percent of US electricity for decades can no longer be operated profitably**. Exelon's six nuclear power plants in Illinois have operated at a loss for the last six years and are now candidates for closure.¶ **What industry pays customers to take its product? The answer is the US wind industry.** Wind-generated electricity is typically bid in electrical wholesale markets at negative prices. But how can wind systems operate at negative prices?¶ The answer is that **the vast majority of US wind systems receive a federal** production **tax credit** (PTC) of up to 2.2 cents per kilowatt-hour for produced electricity. Some states add an addition credit, such as Iowa, which provides a corporate tax credit of 1.5 cents per kw-hr. So wind operators can supply electricity at a pre-tax price of a negative 3 or 4 cents per kw-hr and still make an after-tax profit from subsidies, courtesy of the taxpayer.¶ **As wind-generated electricity has grown, the frequency of negative electricity pricing has grown.** When demand is low, such as in the morning, wholesale electricity prices sometimes move negative. In the past, negative market prices have provided a signal to generating systems to reduce output.¶ **But wind systems ignore the signal and continue to generate electricity to earn the PTC, distorting wholesale electricity markets**. Negative pricing by wind operators and low natural gas prices have pushed nuclear plants into operating losses. Yet, Congress is currently considering whether to again extend the destructive PTC subsidy.¶ **Capacity shortages are beginning to appear**. A reserve margin deficit of two gigawatts is projected for the summer of 2016 for the Midcontinent Independent System Operator (MISO), serving the Northern Plains states. **Reserve shortages are also projected** for the Electric Reliability Council of Texas (ERCOT) by as early as this summer.¶ **The United States has the finest electricity system in the world**, with prices one-half those of Europe. **But this system is under attack from foolish energy policies**. Coal-fired power plants are closing, unable to meet EPA environmental guidelines. Nuclear plants are aging and beset by mounting losses, driven by negative pricing from subsidized wind systems. **Without a return to sensible energy policies, prepare for higher prices and electrical grid failures**.

Answers to: Offshore wind increases grid reliability

Nuclear power is the key to a stable national power grid – wind can't solve because it can't be stored in large quantities.

Weinstein, Writer for The Hill, 2014
(Bernard L., Nuclear Power Can Bring Long-Term Stability to the Stressed Electric Grid, online: http://thehill.com/blogs/congress-blog/energy-environment/195548-nuclear-power-can-bring-long-term-stability-to-the)

Not surprisingly, **the electric power grid is being tested as never before** with some utilities asking customers to dial back their thermostats and to avoid using appliances during hours of peak demand. Even so, **a few power companies have had to impose rolling blackouts and brownouts as they bump against their generating capacity**. **The current cold wave should remind us that integrity of the power grid depends on a diverse portfolio of generating options that, in turn, can serve as a hedge against price volatility or supply disruptions. But this diversity may be at risk**. America is becoming overly dependent on the use of natural gas for power generation, with new gas-fired plants accounting for 75 percent of all capacity additions since 1995. Meanwhile, **the contribution of coal and nuclear plants to the electric grid has been shrinking.¶Because no currently operating coal plant can meet the proposed EPA standards for greenhouse gas emissions from new plants, we're unlikely to see additions to the coal fleet**. And the GHG standards for existing power plants that will be forthcoming later this year will further accelerate the demise of coal for power generation. What's more, four nuclear reactors were shut down last year and Entergy recently announced it will close its Vermont Yankee plant by the end of 2014. ¶To make matters worse, merchant power generators in deregulated states are not investing adequately in new base-load capacity. Because natural gas sets the price for electricity at the margin, and prices are projected to remain below $5 per MCF for the foreseeable future, merchant generators are worried they'll not be able to recover their capital costs in a deregulated market. **In addition, the huge growth of wind generation capacity in response to federal tax incentives and state renewable portfolio standards has further dampened the prospects for capital cost recovery by merchant power generators.¶Investing in nuclear energy remains the best strategy for ensuring long-term diversity and reliability of the power grid**. Despite recent plant closures, nuclear power isn't going away. Five new plants will come on line by 2018 while 14 other applications are pending before the Nuclear Regulatory Commission.¶**The value proposition for nuclear energy is stronger than ever. Nuclear plants operate around the clock safely and reliably, thereby providing stability to the power grid. They also provide forward price stability and are not subject to the price volatility associated with gas-fired plants**. Nuclear operations support large numbers of high-paying jobs and add mightily to the tax base of host communities. Finally, **nuclear power is environmentally benign: no particulates, no sulphur dioxide, and no greenhouse gas emissions**. Just steam.

Answers to: Nuclear power bad (Generic)

Their authors are biased lobbyists who are trying to make nuclear power look bad by exaggerating threats.

Kidd, Director of Research at the World Nuclear Association, 2010
(Stephen, "Nuclear proliferation risk – is it vastly overrated?," *Nuclear Engineering International*, July 23, Online: http://www.neimagazine.com/opinion/opinionnuclear-proliferation-risk-is-it-vastly-overrated)

The real problem is that nuclear non-proliferation and security have powerful lobby groups behind them, largely claiming to have nothing against nuclear power as such, apart from the dangers of misuse of nuclear technology. In fact **in Washington DC**, home of the US federal government, **there is a cottage industry of lobby groups dedicated to** this. Those who oppose their **scaremongering** (and it essentially amounts to no more than this) are castigated as being in the industry's pocket or acting unresponsively to allegedly genuinely expressed public fears. **Pointing out that very few new countries will acquire nuclear power by even 2030, and that very few of these will likely express any interest in acquiring enrichment or reprocessing facilities, seems to go completely over their heads**. In any case, **nuclear fuel cycle technologies are very expensive to acquire and it makes perfect sense to buy nuclear fuel from the existing commercial international supply chain. This already guarantees security of supply**, so moves towards international fuel banks are essentially irrelevant, while measures supposedly to increase the proliferation resistance of the fuel cycle are unwarranted, particularly if they impose additional costs on the industry.¶**It is likely that more countries will** foolishly **choose to acquire nuclear weapons. If they are really determined to do so, there is little really that the world can do to prevent them**—the main effort has to be in dissuading them from this course of action. How many countries will have nuclear weapons by 2030 is hard to say, but there could well be a total of 15 by then. Mueller argues that **this increase**, in itself, **will neither prevent nor cause wars**, but will impose substantial costs on the countries concerned. Apart from the costs of weapons programmes diverting needed economic resources away from more productive activities, such countries are likely to be faced with economic sanctions which would create severe economic hardship for their citizens but be unlikely to deter them.¶So there has to be a better way. The problems of regions such as the Middle East will have to be resolved by negotiation, as the presence of many nuclear weapons states will solve nothing. In the absence of leadership by madmen, the spectre of mutually-assured destruction will merely maintain the status quo; **acquiring nuclear weapons will grant a country more criticism than international prestige.** Meanwhile, **the commercial nuclear sector will hopefully be allowed to flourish without too many people chipping away at the margins by raising unwarranted fears about its activities** (and imposing additional financial costs, which is what it eventually amounts to).

Answers to: Nuclear power bad (Generic)

Wind energy is intermittent because wind doesn't blow all the time – it requires a fossil fuel back up to function, which makes it dirtier than nuclear energy in the long run.

Vine, Senior Energy Fellow at the Center for Climate and Energy Solutions, 2014
(Doug, "Climate Solutions: The Role of Nuclear Power", online: http://www.c2es.org/publications/climate-solutions-role-nuclear-power)

The federal renewable production tax credit (PTC), first enacted in 1992, has played a critical role in building the U.S. wind energy industry. The PTC allows a wind project to claim a $22/MWh credit for its first 10 years of operation.[21] In addition, wind projects are also able to sell renewable energy credits (RECs) that utilities in many states need to comply with renewable portfolio standards.[22] **The combination of zero fuel costs, the PTC, and RECs, has led in certain conditions to wind generation setting very low, or even negative prices in market regions**.[23]¶ In a wholesale power market, negative prices are a signal that a particular location is over-served by generation. **In the short term, negative prices essentially send generators an economic signal to shut down**. However, there may be very short-term circumstances when a power company would actually want to pay a system operator to take its power, such as when it would be more costly for a coal or nuclear plant to power down completely and restart than to pay the operator for a short period of negative prices. **When low and negative prices persist over time, it can be a signal not only that investment in new generation in this location is unnecessary, but also that it may not be profitable to keep a current generation source in operation. Failure to anticipate the need for new generation capacity due to flawed market signals could jeopardize future system reliability**.¶ Additionally, a two-party power purchase agreement (a bilateral contract between the purchaser and the generator) is a widely used hedging strategy against electricity price volatility. Since these agreements are typically negotiated based on historical wholesale prices, when persistently low and negative prices exist at a particular market location, it becomes difficult for a generator to obtain a power purchase agreement. For instance, the expectation that it would be unable to renew its power purchase agreements during a time of low regional wholesale power prices led to Dominion Power's decision to close its Kewaunee Power Station.[24]¶ In summary, policies like the PTC and state renewable portfolio standards have been critical in spurring necessary increases in renewable generation, particularly wind power. However, **as greater quantities of these renewables are bid into competitive wholesale power markets, prices are likely to become very low or negative more often, which could remove the incentive to build new electricity generation of any type—including renewables. These policies, in addition to other factors such as low natural gas prices and market structures, will continue to put pressure on existing nuclear power**, which is also a zero-emission source. Furthermore, **swapping renewables for nuclear, it is not a zero-sum trade of zero-emissions sources. As explained in the section above, since renewables are intermittent and not currently appropriate for baseload generation, they must be backstopped by a consistently available electricity source, which is usually a fossil fuel source with associated greenhouse gas emissions**. In order to preserve and expand the nuclear fleet while continuing to encourage the development of other new zero-emission sources, it may become necessary to reconsider the way in which wholesale markets function.

Answers to: Nuclear power bad (Proliferation)

The Non-proliferation Treaty established a variety of safeguards that limit the illegal spread of nuclear material – the risk of proliferation is very low.

Kidd, Director of Research at the World Nuclear Association, 2010
(Stephen, "Nuclear proliferation risk – is it vastly overrated?," *Nuclear Engineering International*, July 23, Online: http://www.neimagazine.com/opinion/opinionnuclear-proliferation-risk-is-it-vastly-overrated)

Nevertheless, **over the past 35 years, the** International Atomic Energy Agency's (IAEA) **safeguards system under the Nuclear Non-proliferation Treaty** (NPT) **has been a** conspicuous international **success in curbing the diversion of civil uranium into military uses. Most countries have** indeed **renounced nuclear weapons**, recognising that possessing of them would threaten rather than enhance national security. They have therefore embraced the NPT as a public commitment to use nuclear materials and technology only for peaceful purposes.¶"The greatest risk of nuclear weapons proliferation has traditionally rested with countries which have not joined the NPT and which have significant unsafeguarded nuclear activities. India, Pakistan and Israel are in this category. While safeguards apply ¶to some of their activities, others remain beyond scrutiny."¶**Parties to the NPT agree to accept technical safeguards measures** applied by the IAEA, **complemented by controls on the export of sensitive technology** from countries such as UK and USA through voluntary bodies such as the Nuclear Suppliers' Group (NSG). **Safeguards require that operators of nuclear facilities maintain and declare detailed accounting records of all movements and transactions involving nuclear material. The aim is to deter the diversion of nuclear material from peaceful use by maximising the risk of early detection**. At a broader level they provide assurance to the international community that countries are honouring their treaty commitments to use nuclear materials and facilities exclusively for peaceful purposes. In this way safeguards are a service both to the international community and to individual states, who recognise that it is in their own interest to demonstrate compliance with these commitments.

Answers to: Nuclear power bad (Target for terrorism)

Existing security measures will prevent terrorist attacks on nuclear power facilities.

Kidd, Director of Research at the World Nuclear Association, 2010
(Stephen, "Nuclear proliferation risk – is it vastly overrated?," *Nuclear Engineering International*, July 23, Online: http://www.neimagazine.com/opinion/opinionnuclear-proliferation-risk-is-it-vastly-overrated)

Similarly, **the task of the atomic terrorist is far from simple. If it were as easy as many people claim, why haven't there been any incidents**, even when the controls on nuclear materials were far looser than today? And **why do terrorist incidents** (with the possible exception of the sarin gas attack on the Tokyo subway in 1995) **usually involve low tech methods**, such as people attaching bombs to themselves or taking over commercial airlines armed with box cutters and then flying them into prominent buildings? **There may not be**, in reality, **any substantive black market in nuclear materials, despite the stories we regularly hear of nuclear trafficking.** The comparison sometimes made with narcotic drugs is not reasonable; although drug seizures are known to be the tip of a very large iceberg, controls on the production, trade and transport of nuclear materials are much stiffer and potential buyers are very limited in number.¶First, **security considerations have been addressed by deploying additional armed personnel at facilities and by other measures to prevent incursions, while new nuclear plants are designed with the possibility of an aircraft impact much in mind**. Although such events are clearly not impossible, **the entire 50-year history of civil nuclear power contains nothing to suggest that the risks are other than very remote.** Little can be done other than what has been accomplished already and the risks should certainly not be allowed to dominate the assessment of potential future actions. Indeed, **critics of nuclear power are very bad at keeping things in perspective and fail to apply similar degrees of scrutiny to other plans.** For example, should football stadiums not be licensed for 80,000 fans, simply because a direct aircraft strike during a game could conceivably kill many thousands? Should the walls of the stadium have to be several metres thick?

Answers to: Nuclear power bad (Radioactive waste)

Wind energy is comparatively worse for the environment – unlike the wind industry, nuclear power companies are held to strict environmental regulations that control waste.

Fisher and Fitzsimmons, Analysts at The Institute for Energy Research, 2013
(Travis and Alex, "Big Wind's Dirty Little Secret: Toxic Lakes and Radioactive Waste," *Institute for Energy Research,* October 23, Online: http://www.instituteforenergyresearch.org/2013/10/23/big-winds-dirty-little-secret-rare-earth-minerals/)

For perspective, America's nuclear industry produces between 4.4 million and 5 million pounds of spent nuclear fuel each year. That means the U.S. wind industry may well have created more radioactive waste last year than our entire nuclear industry produced in spent fuel. In this sense, the nuclear industry seems to be doing more with less: nuclear energy comprised about one-fifth of America's electrical generation in 2012, while wind accounted for just 3.5 percent of all electricity generated in the United States.¶ **While nuclear storage remains an important issue for many U.S. environmentalists, few are paying attention to the wind industry's less efficient and less transparent use of radioactive material via rare earth mineral excavation in China. The U.S. nuclear industry employs numerous safeguards to ensure that spent nuclear fuel is stored safely. In 2010, the Obama administration withdrew funding for Yucca Mountain, the only permanent storage site for the country's nuclear waste authorized by federal law. Lacking a permanent solution, nuclear energy companies have used specially designed pools at individual reactor sites**. On the other hand, China has cut mining permits and imposed export quotas, but is only now beginning to draft rules to prevent illegal mining and reduce pollution. **America may not have a perfect solution to nuclear storage, but it sure beats disposing of radioactive material in toxic lakes like near Baotou, China.**¶ Not only do rare earths create radioactive waste residue, but according to the Chinese Society for Rare Earths, "one ton of calcined rare earth ore generates 9,600 to 12,000 cubic meters (339,021 to 423,776 cubic feet) of waste gas containing dust concentrate, hydrofluoric acid, sulfur dioxide, and sulfuric acid, [and] approximately 75 cubic meters (2,649 cubic feet) of acidic wastewater."¶ Conclusion¶ **Wind energy is not nearly as "clean" and "good for the environment" as the wind lobbyists want you to believe**. The wind industry is dependent on rare earth minerals imported from China, the procurement of which results in staggering environmental damages. As one environmentalist told the Daily Mail, "There's not one step of the rare earth mining process that is not disastrous for the environment." That the destruction is mostly unseen and far-flung does not make it any less damaging.¶ **All forms of energy production have some environmental impact. However, it is disingenuous for wind lobbyists to hide the impacts of their industry while highlighting the impacts of others. From illegal bird deaths to radioactive waste, wind energy poses serious environmental risks that the wind lobby would prefer you never know about. This makes it easier for them when arguing for more subsidies, tax credits, mandates and government supports.**

Impact: Turns Climate Change – Wind requires fossil fuel backup

Wind can never fully replace nuclear power without relying on fossil fuels – can't do baseload generation

Decher, PhD in Nuclear Engineering and Member of the ANS Public Information Committee, 2012
(Ulrich, Replacing Nuclear with Wind Power: Could it Be Done? The Energy Collective, Online: http://theenergycollective.com/ansorg/84553/replacing-nuclear-wind-power-could-it-be-done)

So, the conclusion is that **intermittently generated electricity cannot replace baseload generation. Just like there is a chance that none of the super-green cars are working on a particular day, there is also a chance that no electricity is generated by an intermittent source. Hence, all the conventional power sources are still needed**.¶ Intermittent power sources can be of value, however, because they do save fuel in conventional power plants. But the economics are usually not very good at today's fuel prices. In the car analogy, I compute that my 20-mile round-trip commute to work would save me about two gallons of gas a month if the super-green car gets double the mileage of my conventional car. At $4 per gallon, that is $8 per month saving. It is obvious that, from an economic point of view, this saving is nowhere near the hundreds of dollars required per month to own an extra car. Similarly, I wrote an article explaining that wind farms cannot be justified on an economic basis, except in Hawaii, where expensive oil is used to generate electricity.¶ But **perhaps using intermittent power plants can be justified environmentally. Perhaps not burning fossil fuels is worth the environmental benefit of not releasing as much greenhouse gases. Also, the fossil resource can be saved for other uses such as plastics. That argument breaks down, however, when the baseload generator is nuclear. Nuclear power does not generate greenhouse gases during operation**. Saving the uranium for other uses is not applicable, because uranium has no other commercial uses. What exactly would we be saving it for?¶ **So, to answer the general question, can wind power replace nuclear? The answer is clearly no. No technology is perfect, and there is always some impact in everything we do. Nuclear has the capability to meet the electrical needs for humanity for a millennia. That is a very compelling reason to use it, versus using a technology that only works intermittently and requires keeping all the conventional generators that we already have**.

Offshore doesn't solve intermittency
Wang and Prinn, Center for Global Change Science and Joint Program of the Science and Policy of Global Change, Massachusetts Institute of Technology, 2011
(Chien and Ronald, March 25, Environ. Res. Lett. 6, Potential Climatic Impacts and Reliability of Large-Scale Offshore Wind Farms, http://iopscience.iop.org/1748-9326/6/2/025101/fulltext/)

Finally, as in Wang and Prinn (2010), we also examined the issues of intermittency, and hence reliability, of large-scale deployment of wind-driven electrical power generation by averaging seasonally the available wind power in various regions of the world (figure 5). **The intermittency in power generation from offshore wind turbine installations is clearly seen in all selected analysis regions** except for the South American coast (figure 5). Such intermittency is most serious over European coastal sites, where the potentially harvested wind power would vary by more than a factor of 3 from winter to summer. **Wind power availability over coastal sites in North America, Southeast and East Asia, and Oceania also display variations of more than a factor**

of two between the peak wind season (winter in the Northern Hemisphere and summer in the Southern Hemisphere) **and the lowest wind season. This would raise a significant issue for power management, requiring solutions such as on-site energy storage, backup generation, and very long-distance power transmission for any electrical system dominated by offshore wind power**.